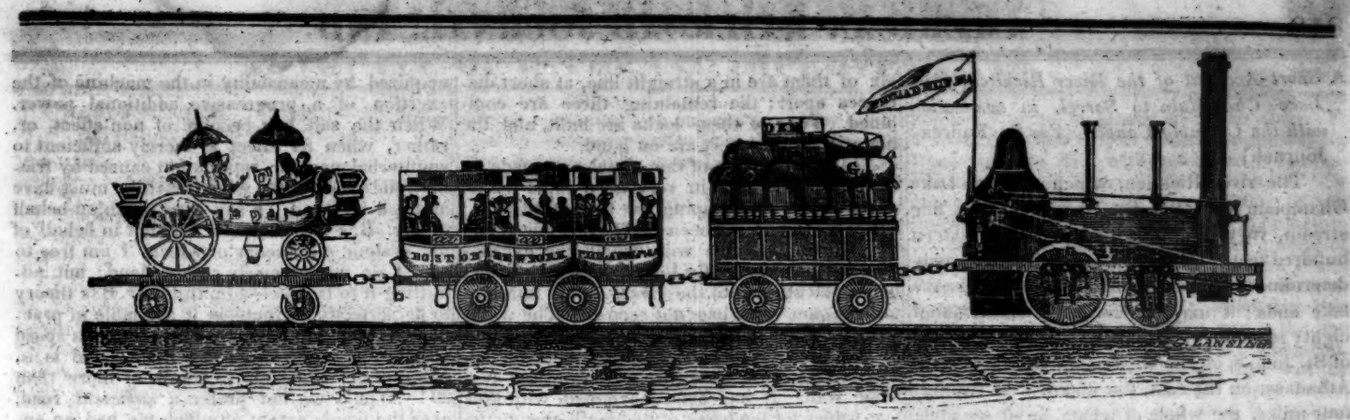

AMERICAN RAILROAD JOURNAL,
AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.] SATURDAY, JANUARY 3, 1835. [VOLUME III.—No. 52.

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AMERICAN RAILROAD JOURNAL, &c.

NEW-YORK, JANUARY 3, 1835.

With this number closes the *third* volume of the Railroad Journal; it may not therefore be improper to take a retrospective view of the short period of its existence. When the first number of the Journal was issued, January 1, 1832, how few railroads were in use in this country, and how little was known about them except to engineers, and even to them, except from books. But now there are railroads in use in at least 12 States of the Union, and in several others they are in a great state of forwardness, so that we may with confidence look for their introduction into every part of the country. Here, even as in England, those who were a short time since strongly opposed to them, are now warmest in their favor, and thousands are striving to bring them to their doors, even though it should require stationary power. Railroads, indeed, are now almost as common as *good* turnpikes, and will soon be much more so—whilst thousands consider themselves competent to survey, construct, and superintend them when made—and any person can obtain descriptions of the mode or modes in which almost any road in the country is built, together with the various modes of using them, their cost, expense of working, and income—as well as much useful information relative to the machinery, and the latest improvements in the construction, both of road and machinery—and all for the low price of twelve dollars—*simply by taking a complete set of the* RAILROAD JOURNAL, *including* the ensuing year.

We do not mean, however, to say that the *Journal* has produced all this; by no means—but the reverse—it is the Railroad System which has made the Journal what it is. Yet we may, we think, without fear of contradiction, say that much useful and important information has been collected, embodied, and preserved by the Journal, and that it now contains a larger mass of useful information upon the subject of railroads, railroad machinery, &c., than can be obtained elsewhere in the country for the same amount of money. But in order to make it what it is, and *is to be*, it has cost us more money than it has produced in return—a circumstance occasioned by the following causes, viz.: 1st, the printing of a much larger edition than has been subscribed for; and 2d, the great extent of country over which its subscribers are scattered, and of course the difficulty and expense of making collections, together with the delay of some to pay up their subscription.

By way, therefore, of guarding against those difficulties hereafter, we shall adopt the following measures: Print a less number, and thereby reduce the expense, and at the same time make an *additional* charge of *one* dollar to those who do not pay according to the terms, *in advance*. In order, however, that every subscriber who now takes it may have time to understand the adoption of this measure,—and it is only adopted from necessity, as we have to pay interest upon every dollar not paid in advance,—and to remit the amount by mail or otherwise, we say to those living at a distance, if paid by the first of *March*, it will be considered in advance. To all out of the city, who have not *already* paid for the 4th volume, bills will be sent with the Index to the last six months, and No. 1 of Volume IV. To those in the city, bills will be presented personally, and it is confidently believed that every subscriber will evince his desire to see the Journal continue and prosper, by paying the amount.

To all who do not thus *by the 1st of March*, pay in *advance*, the bills will be made out at FOUR DOLLARS per annum, and all subscriptions received hereafter not paid *in advance*, will be charged at FOUR DOLLARS per year.

This measure is adopted only to ensure the continuance and success of the publication, and in justice to those who have always paid in advance, thereby enabling us to continue the Journal to this period, and it will be *strictly* adhered to.

Remittances by mail—through the hands of the POST-MASTER—will be at *our risk*. Receipts will, in *all* cases, be returned immediately.

☞ Subscribers who wish to *supply* deficient numbers of the 1st, 2d, or 3d Volume of the Journal, will please give early notice, that we may supply them *as far as possible*. The deficiencies can be better supplied *now* than hereafter.

In this number, page 820, will be found a description, with several engravings, of Mr. Stephenson's improvement in the railroad chair. It is, we should think, too complicated, and must therefore be too expensive for general use in this country. It may be improved upon by Yankee ingenuity, so as to answer a good purpose.

We should like exceedingly well to see the views of A. B. C. carried out in relation to a publication similar to the one to which he alludes. But we cannot with the Journal depart so far from our original plan—we hope, however, to render it more interesting than heretofore.

We have received the Report of the Internal Improvement Convention, recently held at Baltimore, which we shall publish as soon as we have disposed of other interesting matters previously in hand.

In our next number we shall give the last report of the Directors and of the Engineer, H. ALLEN, Esq., of the South Carolina Railroad Company, for the six months ending 31st of October last. This report is highly favorable, showing a fair increase of business, and a constant improvement of the moving power and machinery, as well as improvement of the road, by embanking where it was built on piles. The prospects of this road, notwithstanding it has cost much more than it was at first estimated at, are very fair. It must eventually be a great thoroughfare—and will become very valuable to the stockholders.

A Short Account of the River Richlieu, from Lake Champlain to Sorrel, in connection with the Chambly Canal. [For the Railroad Journal.]

The river Richlieu, which connects Lake Champlain with the St. Lawrence, is a fine stream, varying in breadth from five to sixteen hundred feet. Its precise length is not easily determined, since it is difficult to say where the lake ends; it may, however, be called about eighty miles long. From the lake to the village of St. John's, on the west bank, and that of St. Athanass, on the east, the distance is twenty-four miles, the whole of which, at all seasons, when not obstructed by ice, is navigable for vessels drawing six feet water.

The next twelve miles are chiefly rapid, making a fall of about seventy-eight feet, (in the whole distance,) into a very beautiful and natural basin, of about two and a half miles* in breadth and three long; on the west bank of which is situated the village of Chambly, distant from Montreal, in a direct line, about thirteen miles.

The remaining forty-two miles, (where the waters of the Richlieu and St. Lawrence join at the village of Sorel, or William Henry,) can, with a trifling expense, be made navigable for vessels of the same draft as the river will admit of above St. John's.

To overcome the difficulties occasioned by the twelve miles of rapid, the Chambly canal was projected; and as it has not appeared in your account of North American canals, it has probably never been heard of by you, I therefore take the liberty of sending you the following sketch to complete your list.

It is one of the largest class of canals, and though economy has been a point attended to, the work has still been carried on with due attention to beauty as well as strength.

The canal and harbor, connected, is twelve miles long, commencing at the village of St. John's, and ending at the Chambly basin. Its width is thirty-six feet at the bottom, sixty feet at top water line, and six feet water will be had in it at all times. The locks are of cut stone, one hundred and twenty feet by twenty-four in the chamber. The bridges all swing or draw.

The canal commences by a wier of stone, sixteen hundred feet long, forming one side of a basin two hundred and fifty feet wide at the entrance, and nearly five hundred feet just within it, narrowing down to canal width, (60 feet,) at the lower end. One side of this basin is to be wharved up, and a street of sixty feet wide made, the materials for which are ready, and the work in progress.

At the end of this basin the rapid commences, and the banks are carried up fifteen feet high, to keep out floods. The guard lock, nine hundred feet from the entrance of the basin, is of stone, cut very smooth, and about the same dimensions as the other locks.

From this lock, three miles down, the bank falls with the river surface from fifteen to nine feet high, and from hence runs some distance across the river to an island near the west shore, forming a dyke, which, with a similar one at the foot of the island, about two miles and three quarters distant, gives, at a trifling expense, a natural canal of eight hundred feet wide, and twenty deep.

The canal from this to Chambly, except a half mile, made under a high bank in deep and rapid water, with a half mile of deep cutting through rock, follows a beautiful table land to Chambly, keeping from the river, and on the same level with St. John's.

Nine locks here come together within a mile, six of them are in a straight line, at short distances apart; the remaining three are combined. Four of these locks are built, and the materials for the rest are on hand.

Nearly four miles of this canal are made in the water, and part in very deep rapid water. A great deal of pumping has been necessary; the screw pump has been exclusively used; and the ease and comfort with which the excavation has been done, for long distances, six feet below the surface of the river, would surprize any person who has not seen it. The water work seemed but little more trouble than that on dry land, except the pumping. The banks, when made in the river, are well protected by a slope wall. It has been navigated, with four feet water, for ten miles of its length, during the fall; and nearly all the stones, put in the locks, have been brought to Chambly by the canal, having been reshipped from vessels which brought them from quarries thirty miles from the head of the canal.

The work was estimated, with locks of a smaller size, to cost $240,000; the actual cost will, however, fall short of $200,000, if nothing unforeseen occurs. The low prices of labor and stone-cutting, and the favorable nature of the ground, afford vast facilities for such an undertaking.

The Canadian French are equal to any masons and stone-cutters on the continent, for the beauty and excellence of their workmanship, and I think few are superior to them anywhere.

The Chambly canal, when complete, will open a communication for large vessels from the ports on lake Champlain to all the line of the St. Lawrence, and thence to the sea. If the northern canal was larger, schooners from Quebec could, by an inland navigation, visit the Chesapeake.

The Richlieu, below Chambly, is to be improved by a lock and dam. Examinations and reports on it have been made by an engineer. Part of the money has been voted by the Assembly for constructing the works. More, however, is still required, and some alterations in the law relating to the river, before the commissioners can proceed with their improvements. H.

* Can this be true?

Undulating Railways.—Is not this subject of sufficient importance to induce the trial on a road two or three miles in length, by some of the railroad companies in this country?

Boston, 14th Dec., 1834.

To the Editor of the Railroad Journal.

Sir,—Your correspondent, Mr. Thomson, recalls our attention to the Undulating Railway System. Mr. T. states that Mr. Badnall's experiments would prove too much. I do not exactly perceive this. Mr. Badnall, I believe, asserts, and, as some think, proves, that, over a certain distance of road, a carriage can be moved with less expense of power, where the profile on that distance is undulating, than when it is perfectly straight; but he does not assert that it can be moved without any exertion of power.

A pendulum will vibrate equal distances on either side of a vertical line drawn from its axis. A carriage, on an undulation, will exhibit the same result, minus the friction; but this friction may be more than overcome by the action of the accompanying engine, both during its ascent and descent of the two sides of the undulation. And, if the power of an engine were unlimited, it would be easy to conceive how the velocity of a carriage would be accelerated over a series of undulations progressively, *ad infinitum*; but as there is a limit to the power of the engine—a velocity when it will become of no effect—so there is a maximum of speed or effect in the system. A progressive additional velocity, it is easy to perceive, could only be acquired by a capability in the machine of the exertion of a progressive additional power. When the salt has become of non-effect, or, rather, when its effect is merely sufficient to counterbalance the retardation caused by friction, the speed of the whole machine must have attained its limit. I say thus much on behalf of Mr. B.'s experiments, and not in behalf of his system, the theory of which, I am free to say, I do not precisely comprehend; but, admitting it to be true—admitting Mr. B.'s theory to be perfectly correct—is it available in practice? Is it safe to admit, at any time, of a speed of more than 30 miles an hour; and is it, at any time, advisable to allow of more than 20? Would we not prefer a *sufficient* road, over the whole extent of which we had an entire control, to a more perfect one, over which, when once in motion, we must necessarily be carried forward, (without power of stoppage, consistent with the benefits in dispute,) and where we can only command certain points, viz., the tops of the undulations? And, finally, is it at all certain that the expense of grading a series of undulations so as to conform correctly to the theory, would not be equal to the present antiquated method, which, as it does not *insist* on undulations, should be able to conform fully as nearly to the natural surface?

Every individual railroad may be considered as an individual piece of machinery. Should any accident occur, we want to have the power to remedy it as quickly as possible; should any car of a train get off the road, we want to stop that train immediately; should any wheel break, or axle bend, we want to throw out the damaged waggon; should there be any unexpected obstacle on the road, we want to be able to "pull up" till it is removed. But, if a train were moving at full speed down one of Mr. B.'s undulations, under such circumstances, blowing, and puffing, and straining, to acquire power for the ascent, the destruction would be tremendous. Wo to the unhappy passengers who might form part of it! I certainly agree with Mr. Cheverton—some of whose very excellent letters you have quoted from the London Mechanics' Magazine; that, viewing it practically, the system is very replete with absurdity. I have not time to say more.

Very respectfully, S. D.

On the Location of Railroad Curvatures; being an Investigation of all the Principal Formulas which are required for Field Operations, in laying Curves and Tangent Lines, to pass through Given Points. By J. S. Van De Graaff. Continued from page 660.

[For the American Railroad Journal.]

Example 3. Let the relative positions of the origins and tangent lines be such as is indicated by figures 3 and 4, the primitive origin being

Fig. 3.

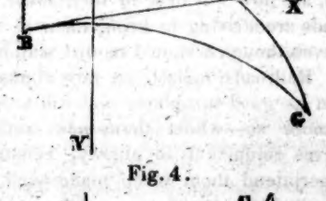
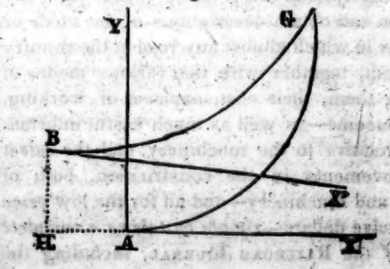


Fig. 4.



represented at A, as before, and the tangents

$\frac{10\times\cdot98481+20\times\cdot17365}{100+400} = \frac{9\cdot84810+3\cdot47300}{500} = \frac{13\cdot32110}{500} = \cdot02664$; or, $T' = 1°\ 31\frac{3}{4}' =$ modulus of curvature, which would trace either of the curves, in figure 3 or figure 4, from the *new origin* B to the designated point G.

Example 4. Suppose the relative position of the *new origin* to be such as is represented by figure 3, or figure 4; and let the two tangents AX and BX′ *diverge* in advance.

Taking the signs which appertain to this case, the following values will obtain: $\propto = +3$, $B = -2$, and $z = +10°$; and consequently

$$\text{Sin. } T' = \frac{\overline{12-2}\cdot\text{Cos. } 10° - \overline{17+3}\cdot\text{Sin. } 10°}{\overline{12-2}^2+\overline{17+3}^2} = \frac{9\cdot84810-3\cdot47300}{500} = \frac{6\cdot37510}{500} = \cdot01275;$$

or, $T' = 0°\ 43\frac{3}{4}' =$ new modulus of curvature which would be required in either of the figures 3 or 4, upon the supposition that the tangents AX and BX′ *diverge* in advance.

Example 5. Let figures 5 and 6 show the

Fig. 5.

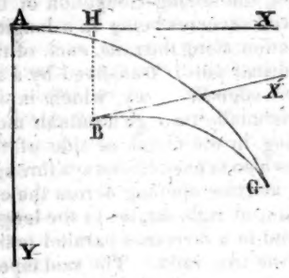
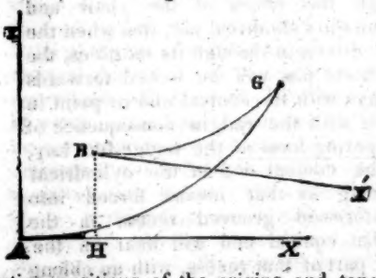


Fig. 6.



relative positions of the origins and tangent lines, as occurring in two different instances; the tangents being represented *converging* in advance.

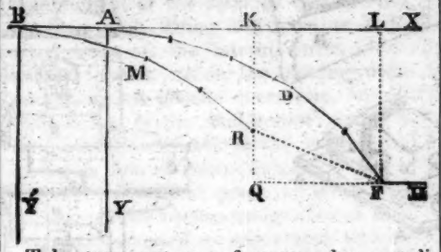
Here the following values will obviously obtain with reference to either of the figures 5 or 6; that is, $\propto = -3$, $B = -2$, and $z = -10°$. Therefore,

$$\text{Sin. } T' = \frac{\overline{12-2}\cdot\text{Cos. } 10° + \overline{17-3}\cdot\text{Sin. } 10°}{\overline{12-2}^2+\overline{17-3}^2} = \frac{9\cdot84810+2\cdot43110}{296} = \frac{12\cdot27920}{296} = \cdot04148;$$

or, $T' = 2°\ 22\frac{3}{4}' =$ required modulus of curvature.

The preceding examples do not exhibit all the mutations which will sometimes occur in (XXII) —but are sufficient to explain the principle. The importance of that formula in the field rendered such explanations necessary, in order that those persons who may not be already familiar with that elementary principle of analytical geometry, may nevertheless be enabled to compute without perplexity or liability to error.

23. Suppose ADF to represent a given curve, and BMR another proposed curve laid upon the same tangent line AX, and let $\propto$ denote the given distance AB, between their origins. Take T and T′ to represent the given moduli of curvatures, and n, and m, the given number of chains contained in each curve respectively. It is required to determine the distance FR, between the extreme stations of those two curves; and it is also proposed to show a method by which the instrument may be directed into the line FR, from the extremity of the given curve ADF.



Take two systems of rectangular co-ordinate axes, AX, AY, and BX, BY′, corresponding with the common tangent line AX, and whose origins coincide respectively with the origins A and B of the two curves. Taking x, y, to denote the co-ordinates AL, LF, of the extremity of the given curve ADF, their values will be either known from (VII.), or determined in the field by means of a system of rectangular lines. Let x', y', be the co-ordinates, BK, KR, of the extremity of the proposed curve BMR, as estimated agreeably to the proper axes BX, BY′. The differences, KL, RQ, of co-ordinates, will then be expressed by $x+\propto-x'$, and $y-y'$, respectively. Hence, taking w to denote the distance sought, the common principle of analytical geometry gives the following formula:

$$w = \{\overline{x+\propto-x'}^2 + \overline{y-y'}^2\}^{\frac{1}{2}} \quad \text{(XXIII.)}$$

And thus the distance w becomes known; for the values of the co-ordinates x', y', will be expressed as follows:

$$x' = \frac{\text{Sin. } 2mT'}{2\text{ Sin. } T'}$$

$$y' = \frac{1-\text{Cos. } 2mT'}{2\text{ Sin. } T'}.$$

Now, in order to determine a method of directing the instrument into the line FR, when placed at the given station F, let FH be a line whose direction is parallel to the axis of x, and whose position is in *advance* of the station F, with reference to the origin A, upon the axis AX. The instrument may then be directed into the line FH, either by means of (IV.), or by the principles contained in Art. 16, agreeably to the circumstances of the case. Take, therefore, the letter P, to denote the angle of position HFR; and when its value has been computed, by a method which will be presently shown, deflect the angle HFR = P, and the instrument will indicate the required direction FR. And thus the position of the station at R will be seen at once, without actually tracing the proposed curve BMR.

The value of the angle P is now to be investigated. By plane trig. Rad.: Sin. QFR :: FR : RQ; and, also, Rad. : Cos. QFR :: FR : FQ. That is, $\text{Sin. QFR} = \frac{y-y'}{w}$, and $\text{Cos. QFR} = \frac{x+\propto-x'}{w}$. But, agreeably to the principles of trigonometry, Sin. P = Sin. QFR, and Cos. P = — Cos. QFR. Hence the following formulas are the obvious result:

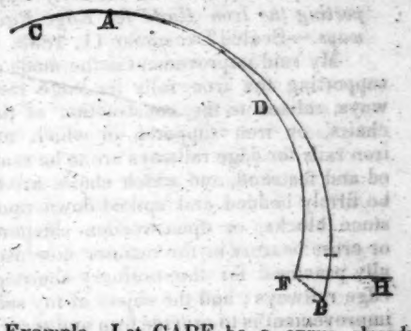
$$\text{Sin. P} = \frac{y-y'}{w};$$

$$\text{Cos. P} = \frac{x'-x-\propto}{w}. \quad \text{(XXIV.)}$$

It will require a reference to both of the expressions (XXIV.), to determine the magnitude of the angle P, although one of them will be sufficient in finally making the computation. In this inquiry, the *signs* of the various quantities must be particularly observed in the following manner.

The quantity $\propto$ is considered positive when the given origin A is in *advance* of the proposed origin B; and consequently, *in a contrary case*, the quantity $\propto$ must have its sign *reversed* in (XXIII.) and (XXIV.). The angle P, is supposed to be measured from the station F, and from the line FH, in a direction increasing from *right to left*, with reference to the line FH, through all four of the quadrants. By observing this principle, the position of the line FH, under all circumstances, will be immediately known from the *signs* of the quantities Sin. P and Cos. P. Thus, when Sin. P and Cos. P are both positive, the line FR will be situated in the first quadrant; when Sin. P is positive, and Cos. P negative, then is the line FR posited in the second quadrant; when Sin. P and Cos. P are both negative, then will the line FR fall in the third quadrant; and lastly, when Sin. P is negative, and Cos. P positive, then will the situation of the line FR be found in the fourth quadrant.

The following example will illustrate the utility of (XXIII.) and (XXIV.)



Example. Let CADF be a curve already traced from a modulus of curvature of 2° 30′, and let A be a station in that curve 30 chains from the extreme station at F. Supposing a change of curvature to be made at A, such as to trace the curve AR, for a distance of 30 chains, from a modulus of curvature of 2° 28′, it is proposed to know how far those two curves would be separated from each other at their extremities; and it is also required to designate a line immediately from the extremity of the given curve, as already laid, to the point where the proposed curve would terminate.

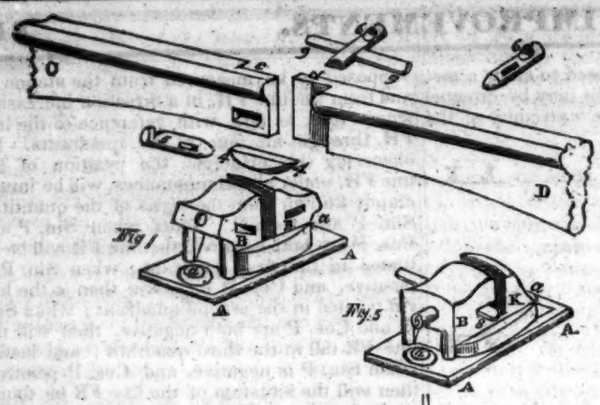
In this case, then, $\propto = o$, $n = m = 30$, $T = 2°\ 30'$, and $T' = 2°\ 28'$. Hence, $2nT = 150°$, $2mT' = 148°$; and therefore, by (VII.),

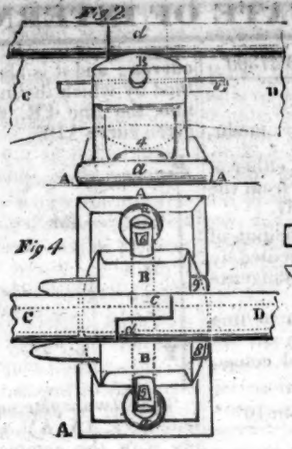
$$x = \frac{\text{Sin. } 150°}{2\text{ Sin. } 2°\ 30'} = \frac{\cdot50000}{\cdot08724} = 5\cdot731;\ y = \frac{1-\text{Cos. } 150°}{2\text{ Sin. } 2°\ 30'} = \frac{1+\cdot86603}{\cdot08724} = \frac{1\cdot86603}{\cdot08723} = 21\cdot389;$$

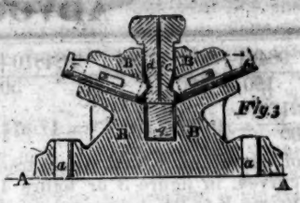
$$x' = \frac{\text{Sin. } 148°}{2\text{ Sin. } 2°\ 28'} = \frac{\cdot52992}{\cdot08608} = 6\cdot156;\ y' = \frac{1-\text{Cos. } 148°}{2\text{ Sin. } 2°\ 28'} = \frac{1+\cdot84805}{\cdot08608} = \frac{1\cdot84805}{\cdot08608} = 21\cdot469.$$

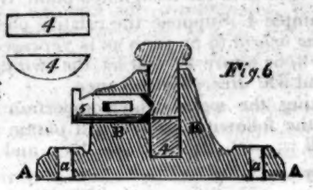
Wherefore, $x+\propto-x' = 5\cdot731-6\cdot156 = -\cdot425$; $y-y' = 21\cdot389-21\cdot469 = -\cdot080$; and $w = \{\overline{-\cdot425}^2+\overline{-\cdot080}^2\}^{\frac{1}{2}} = \{\cdot1806+\cdot0064\}^{\frac{1}{2}} = \cdot1870^{\frac{1}{2}} = \cdot433$ of a chain = required distance FR. In this example, the position of the line FH, which is parallel to a tangent at A, must be obtained agreeably to the method explained in Art. 11; and then, $\text{Sin. P} = \frac{y-y'}{w} = \frac{-\cdot080}{\cdot433} = -\cdot1848$; $\text{Cos. P.} = \frac{x'-x-\propto}{w} = \frac{+\cdot425}{w}$. Here, Sin. P is negative, and Cos. P positive; and consequently the angle P falls in the 4th quadrant; that is, from Sin. P = — ·1848, I find, P = 349° 21′, which is the value of the *exterior* angle HFR; and therefore deflect the *interior* angle HFR equal to 10° 39′, and the instrument will then show the required direction of the line FR.

New Gold coinage.—The total amount of the new emission of gold coinage, coined since the 1st of August last up to the 6 h inst. is *three million two hundred and forty eigh thousand, eight hundred and ninety dollars!*









Specification of the Patent granted to ROBERT STEPHENSON *the Younger, for an Improvement in the Mode of Supporting the Iron Rails for Edge Railways.*—Sealed December 11, 1833.

My said improvement in the mode of supporting the iron rails for edge railways, relates to the construction of the chairs, or iron supports, in which the iron rails for edge railways are to be seated and fastened, and which chairs are to be firmly bedded and spiked down upon stone blocks, or upon wooden sleepers, or cross bearers in, the manner now usually practised for the ordinary chairs of edge railways; and the object of my said improvement is to provide firm and secure bearings at the bottoms of the notches in the chairs for the rails to rest upon, those bearings being capable of self-adjustment, in order that they may adapt themselves correctly to the under parts of the rails; and adequate provisions being also made for fastening the iron rails securely downwards upon such self-adjusting bearings, as well as for confining the rails laterally within the notches in the chairs, but in such manner that the said self-adjusting bearings will not be subject to be deranged, or the said fastenings to be loosened, by the effect of any such slight tilting or inclination of the chairs in the direction of the length of the rails as may result from partial or unequal subsidence of the ground beneath the stone blocks or wood sleepers, upon which the chairs are fastened, nor by the effect of any such slight elongations and contractions in the length of the rails as they are usually liable to from ordinary changes of temperature. And my said improvement consists in the application of a self-adjusting segmental bearing-piece into a suitable cell at the lower part or bottom of the notch in each chair, in order to form a bearing-surface for the rail to rest upon, the said segmental bearing-piece being in the form of a segment of a circle, and lodged with its convexity or circular arch of the segment downwards within the cell, which is of corresponding concavity, and excavated below the usual level of the bottom of the notch in the chair; the flat side or chord of the said segment being uppermost, and forming the bearing-surface at the bottom of the notch in the chair; upon that bearing-surface the underside of the iron rail is to rest, and the said bearing-surface will always accomodate itself to the said under side of the rail, so as to form an even contact therewith, in consequence of the lower convex part of the segmental bearing-piece assuming a suitable position within its cell, whereby the said uppermost or rail-bearing surface of the said segmental bearing-piece will always preserve its conformity to the under side of the rail, although the chair itself in which the said bearing-piece is applied, should come to tilt or incline in the direction of the length of the rail in consequence of unequal settlement of the ground in which the stone block or the sleeper is bedded. And in order to fasten the rails securely downwards upon my said segmental bearing-pieces, as well as to confine the rails laterally within the notch of each of the chairs, the parts with which each chair is provided for the purpose of such fastening, must take its (or their) hold of the rail (or of the rails) at or very near to the centre of the circular curvature of the said segmental bearing-piece, and of the cell wherein the same is lodged, because a settlement or tilting of the chair, and the corresponding self-adjustment of the segmental bearing-piece in its cell, as aforesaid, will not have any material tendency to loosen or interfere with the holding-down action when the same is applied at or very near to the centre, about which the motion attendant on the said adjustment will take place. And further, the said holding-down action, which is to be applied, as aforesaid, by taking hold of the rail or rails at or near to the said centre, must take that hold in such manner as will permit of slight elongation and contraction of the rail or rails, in the direction of their length, without relaxing the effort of the holding-down action, or displacing the point of action thereof away from the said centre. And likewise, the same parts which perform the holding down must effect the lateral confinement of the rails within the notches of the chairs, and must also retain the rails edgeways upwards, in a proper position for the wheels of railway carriages or of locomotive steam engines to travel upon them. The mode of holding down and fastening the rails upon my said segmental bearing-pieces, which I recommend for the fulfilment of the aforesaid conditions, is by the application of cylindrical centre-pins of iron, which are fitted into corresponding sockets formed through the cheeks or sides of the notches of the chairs, so as to be firmly held in a horizontal direction, or nearly horizontal, and crossways to the direction of the length of the rails, and which cylindrical pins terminate with obtuse conical points at those ends which project from the sockets into the notches of the chairs, and the said points enter into oblong or grooved recesses, which are formed in the upright sides of the under part of the rails, suitably for the reception of the said points, the oblong elongation of the said grooved recesses being in a longitudinal direction along the rails, each of the said cylindrical pins is transfixed by a tapering or wedge-like key, which is inserted horizontally through a suitable mortice opening in the cheek or side of the chair, so as also to pass crossways through a suitable mortice opening across the cylindrical pin, at right angles to the length thereof, and in a direction parallel to the length of the iron rails. The said tapering key being so applied in its mortices through the cheek of the chair and through the cylindrical pin, that when the key is driven in through its mortices, the cylindrical pin will be forced forwards endways with its conical end or point in contact with the rail, in consequence of the tapering form of the wedge-like key, and the conical end of the cylindrical pin being by that means forced into the aforesaid grooved recess in the rail, that conical end will bear on the lower part of that recess, with an oblong bearing-down action, which will jamb the rail downwards upon its self-adjusting bearing piece, at the same time that it confines the rail laterally within the notch of the chair. And, note—those chairs which are to receive and support the extremities of the several lengths of iron rails at the junction of those extremities, require to be provided with two of the aforesaid cylindrical pins and wedge keys, in each chair, namely, one cylindrical pin through each cheek or side of the notch in the chair, with the conical points of those pins directed towards each other. The extremities of the lengths of iron rails may be united by what are called scarf or half-lap joints, which apply flatwise to each other, side by side; and the double, or over-lapping parts, at the ends of two adjoining rails, being included within the notch in the same chair, the conical points of the two opposite pins of that chair are both to be forced forwards, by their respective wedge-like keys, into the grooved recesses aforesaid, which are made at the outside of each the two halves of the half-lap or scarf joint, by which means the pressure occasioned by the wedging up of the two

pins will hold the said two halves firmly together, at the same time that the action of each of the conical points of the pins within its own grooved recess in one half of the joint of the rails, will hold that half down upon my segmental bearing-piece, which is applied as aforesaid, in its cell, at the bottom of the notch in the chair, for the ends of the two rails to act upon, wherefore by the keying of the two opposite pins of the same chair the junction of two rails is made secure laterally; and also, the extremity of each of those two rails which form the junction is fastened downwards, independently of the fastening down of the extremity of its fellow rail, in the same chair, and on the same segmental bearing-piece at the bottom of the notch of that chair. But those chairs which are to form the intermediate supports for the several lengths of iron rails, between the junctions of those lengths, require only one of the said cylindrical pins in each chair, viz. through one of the sides or cheeks of the notch of the chair, the opposite side or cheek being a flat vertical surface (or nearly so) against which the flat vertical surface of the iron rail is pressed laterally, and held firm thereto, by the keying up of the cylindrical pin through that cheek or side of the notch of the chair to which the said flat vertical surface is opposite, and at the same time the action of the conical point of the cylindrical pin, in its grooved recess in the rail, holds the rail forcibly downwards upon my segmental bearing-piece, which is applied in its cell, as aforesaid, at the bottom of the notch of the chair for the underside of the rail to rest upon. The said intermediate chairs, with one cylindrical pin in each chair, by holding the rails laterally against the flat vertical side or cheek thereof, as above mentioned, will keep the rails edgeways upwards, and firmly retained in their proper positions for the wheels of railway carriages and locomotive steam-engines to travel over them. The other kind of chairs hereinbefore mentioned, with two cylindrical pins in each chair, confine the junctions of the several lengths of iron rails together laterally, at the same time that they hold down the extremity of each rail on my segmental bearing-piece. The grooved recesses which are formed in the sides of the iron rails for the reception of the conical points of the cylindrical pins, and for giving them their oblique bearing-down action, being of an oblong form, in the direction of the length of the rails, as aforesaid, that form will permit of slight elongations or contractions of the rails lengthwise, without causing any relaxation or alteration in the confinement of the rails in their chairs, because elongations and contractions will have no influence on the lateral pressure which the said conical points are required to exert against the rails, nor on the holding-down action which results from the same lateral pressure, in consequence of the oblique bearing-down action of the conical points against the lower part of the grooved recesses in the sides of the rails. And in consequence of the centre of the said conical points being at or very near to the centre of the circular curvature of the cell at the bottom of the notch in the chair (and of my segmental bearing-piece, which is lodged in that cell,) any slight tilting or inclination of the chair in the direction of the length of the rails and consequent self-adjustment of the said segmental bearing-piece in its cell will not cause any relaxation of the confinement of the rails in their chairs, because such tilting will have no influence either on the lateral action of the conical points, or on the holding-down action, which results therefrom, by oblique action of the said conical points in the grooved recesses in the rails. And note—in lieu of mere conical points to the said cylindrical pins, the latter may terminate with obtuse wedge-like or chissel ends, adapted to enter into and act obliquely within the aforesaid oblong grooved recesses in the rails, in which case the cylindrical pins must be allowed a small liberty of turning motion in their sockets, through the sides or cheeks of the chairs, in order that their chissel ends may continue to conform to the grooved recesses in the rails, notwithstanding any slight tilting of the chairs themselves. For this purpose the mortices through the cylindrical pins must be as much wider than the thickness of the wedge-like keys which are to be driven through the said mortices as will permit of the requisite turning motion of the cylindrical pins in their sockets. And the acting extremities of the said cylindrical pins, whether conical points or chissel ends, may be case-hardened, or they may be made of steel, hardened and tempered, in order to give them durability if required. And note—the sockets for the said cylindrical pins may be made through the cheeks or sides of the chairs, in a direction somewhat inclining from the horizontal, instead of being horizontal, as hereinbefore mentioned, the conical or chissel-shaped ends of the pins being rather lower than the other ends, in order that the lateral action and pressure exerted by the pins, may act against the rails with a downwards tendency when the pins are forced endways by their cross-keys into the grooved recesses in the rails. The holding-down action on the rails will be rather greater if the pins are so inclined, than if the pins are horizontal, but their inclination from the horizontal must not be so great as to cause any sensible impediment to the turning-action, which the conical points of the pins must make within the grooved recesses in the rails, or else the turning-motion which the chissel-ended pins must make in their sockets, in order to accommodate to a tilting inclination of the chairs.

Fig. 1, in sheet I., is a perspective view; and in sheet II., fig. 2, is a lateral elevation; Fig. 3, a transverse section; and Fig. 4, a horizontal plan of a chair, for supporting and uniting the extremities of the lengths of iron rails for edge railways. A, A, is the flat bottom or base of the chair, which is to be bedded upon the stone block, or wooden sleeper, and firmly fastened thereto by spikes driven down through the holes, *a*, *a*. B, B, are the cheeks or sides of the notch in the chair, that notch being the parallel space which is left between the said cheeks or sides for the reception of the rails C, *c*, D, *d*, which may join together with a half-lap joint, as is shown in the perspective view, fig. 1, and in the plan, fig. 4, the double or overlapping parts, *c*, *d*, being of the same size, or nearly of the same size, as the other parts of the rails, and those parts are included within the notch of the chair. The bottom of the said notch is deeper than necessary for receiving the rails, and is depressed into a concavity or cell suitable for the reception of my segmental bearing-piece, 4; see also fig. 1, where the same is represented separately; the under edges of the rails rest upon the uppermost flat surface of the said bearing-piece, 4, the undermost part of which is a circular curve, and the form of the cell corresponds thereto. 5 and 6, are the cylindrical pins, which are fitted into cylindrical sockets, through each of the cheeks or sides. B, B, and 8, 9, are the tapering or wedge-like keys, which are inserted through suitable mortices in the cheeks, and across the pins 5 and 6, for the purpose of forcing forward those pins, so that their pointed extremities may press obliquely upon the lower parts of the grooved recesses in the rails, with a bearing-down action, which will confine the rails downwards upon the bearing-piece, 5, at the same time that they are confined laterally in the chair. The cylindrical pins, represented in figs. 1, 2, 3, and 4, are in an inclined direction, in order that their bearing-down action may be more efficient, but the pins may be horizontal; in either case the centre of curvature of their points, at the places where those points bear in the grooved recesses of the rails, being at, or very near to, the centre of curvature of the lower part of my segmental bearing-piece, and of the cell in which it is lodged. In fig. 1, the cylindrical pins are shown detached, in order to explain the manner in which the pointed extremity applies into the grooved recess in the rails, so as to exert a bearing-down action thereon; and in the same fig. 1, a chisel-end is represented, as well as a conical point.

Fig. 5, sheet I., is a perspective view; and

Fig. 6, sheet II., is a transverse section of a chair for supporting the iron rails at intermediate distances between the extremities or junctions of their several lengths; it has only one cylindrical pin, 5, fitted through one of its cheeks, B, the opposite cheek, K, being a flat vertical surface against which the flat side of the rail is pressed and held firm, by the keying up of the cylindrical pin, 5, so as to confine the rail laterally at the same time that the oblique action of the point of the cylindrical pin, 5, in the grooved recess in the rail, produces a bearing-down action, which confines the rail down upon my segmental bearing-piece, 4, which is applied in a cell at the bottom of the notch of the chair, exactly the same as in the chair with two cylindrical pins, before described. The chairs are to be made of cast-iron; the sockets for the cylindrical pins, the mortices for their wedge-like keys, and the cells for my segmental bearing-pieces, being all formed in the casting, as well as the holes for the holding-down spikes. The wedge-like cross keys, the cylindrical pins, and the segmental bearing-pieces, are to be made of wrought-iron.

From the forthcoming number of the "Mechanics' Magazine and Register of Inventions and Improvements."

Memoir of Robert Fulton.

WHO WAS THE INVENTOR OF STEAM NAVIGATION?

[From Dunlap's History of the Rise and Progress of the Arts of Design in the United States.]

The parents of this gentleman were of Irish origin: the father, a native of Kilkenny—the mother a Pennsylvanian, by name Smith, and descended from Hibernian emigrants. Robert was the oldest of two sons: he had three sisters, two older than himself. He was born in Little Britain, in the county of Lancaster, Pennsylvania, in 1765, and showed early indications of his attachment to mechanics; but was, as a youth, still more devoted to the pencil. He commenced the painting of portraits and landscapes, as a profession, at the age of seventeen; that is, in the year 1782, and continued so employed until 1785. During this period, Charles Wilson Peale was the principal painter in Philadelphia, until Pine's arrival; and doubtless Fulton did not neglect the instruction to be derived from them and their pictures.*

Robert Fulton, at the age of 21, had, by his industry and frugality, enabled himself to purchase a little farm in Pennsylvania, on which he established his mother, and soon after crossed the Atlantic to seek instruction from Benjamin West. That Mr. West justly appreciated the character of his young countryman, is attested by his presenting him with two pictures: one representing the great painter with his wife's portrait on his easel; and the other Fulton's own portrait.

Mr. Fulton, perhaps by invitation, practised as a portrait painter in Devonshire, and here appears to have revived his attachment to mechanics. Canal navigation attracted his attention, as he here became acquainted with the Duke of Bridgewater, and they became united by their mutual love of science. Lord Stanhope and Fulton were attracted to each other by similar propensities. In 1793 was published a print, engraved by Sherwin, from a picture by Fulton, of Louis XVI. in prison, taking leave of his family. The only copy I have seen is possessed by my friend Dr. Francis: it is now a curiosity. As early as 1793, Fulton's mind was engaged in projects to improve inland navigation. In 1794 he obtained a patent for a double inclined plane, and other patents, from the British government. For eighteen months he resided in Birmingham, and improved his knowledge of mechanics in that great workshop.

In 1795 he published several essays, which elicited the compliments and recommendations of Sir John Sinclair and the Board of Agriculture. The profession of a painter was abandoned, and his knowledge of the art of design applied to drawings on the subjects which now engaged his mind.

In the year 1797 Mr. Fulton had apartments in the same Parisian hotel with Joel Barlow; and a friendship was then formed between these two eminently gifted and amiable individuals, which was only broken by death. When Mr. Barlow established himself in a style befitting his public station, in a hotel appropriated to himself and lady, he invited Fulton to make one of his family. Here he resided seven years, during which he studied the modern languages, and the higher branches of science. During this time Fulton also projected a panorama, in imitation of Barker. It had some success, and is said to have been the first seen in Paris. But his mind was occupied with other projects, particularly the explosion of gunpowder under water. His torpedoes were offered to the French and Dutch governments; and when Bonaparte became first consul, he appointed a commission to examine Fulton's plans, and assist in making experiments.

When chancellor Livingston arrived in Paris, the intimacy between him and Fulton commenced, which led to the fulfilment of his destinies, by the accomplishment of steam navigation.

If the failure of Mr. Fulton's schemes for the destruction of ships of war, by torpedoes, fixed his attention upon navigating vessels by steam, we may congratulate the world that the conflicting nations of Europe, to whom with perfect indifference he seems to have offered his projects and services, for the destruction of their enemies, did not accept of them. If, as we believe, the views of Mr. Fulton were to banish naval warfare from the world, perhaps that change which will take place in defensive warfare, by the use of the steam frigate, such as Fulton built at New-York, in harbors and on coasts, may go far to answer the same end.

In 1801 Mr. Fulton repaired to Brest, to make experiments with the plunging boat he had constructed the preceding winter. This, as he says, had many imperfections, natural to a first machine of such complicated combinations. Added to this, it had suffered much injury from rust, in consequence of his having been obliged to use iron instead of brass or copper, for bolts and arbors.

Notwithstanding these disadvantages, he engaged in a course of experiments with the machine, which required no less courage than energy and perseverance. Of his proceedings he made a report to the committee appointed by the French executive; from which report we learn the following interesting facts:

"On the 3d July, 1801, he embarked with three companions on board his plunging boat in the harbor of Brest, and descended in it to the depth of five, ten, fifteen, and so to twenty-five feet; but he did not attempt to go lower, because he found that his imperfect machine would not bear the pressure of a greater depth. He remained below the surface one hour. During this time they were in utter darkness. Afterwards he descended with candles; but finding a greater disadvantage from their consumption of vital air, he caused previously to his next experiment a small window of thick glass to be made near the bow of his boat, and he again descended with her on the 24th of July, 1801. He found that he received from his window, or rather aperture covered with glass, for it was no more than an inch and a half in diameter, sufficient light to enable him to count the minutes on his watch. Having satisfied himself that he could have sufficient light when under water; that he could do without a supply of fresh air for a considerable time; that he could descend to any depth, and rise to the surface with facility; his next object was to try her movements, as well on the surface as beneath it. On the 26th of July he weighed his anchor and hoisted his sails: his boat had one mast, a mainsail, and jib. There was only a light breeze, and therefore she did not move on the surface at more than the rate of two miles an hour; but it was found that she would tack and steer, and sail on a wind or before it, as well as any common sailing boat. He then struck her mast and sails; to do which, and perfectly to prepare the boat for plunging, required about two minutes. Having plunged to a certain depth, he placed two men at the engine which was intended to give her progressive motion, and one at the helm, while he, with a barometer before him, governed the machine, which kept her balanced between the upper and lower waters. He found that, with the exertion of one hand only, he could keep her at any depth he pleased. The propelling engine was then put in motion, and he found, upon coming to the surface, that he had, in about seven minutes, made a progress of four hundred metres, or about five hundred yards. He then again plunged, turned her round while under water, and returned to near the place he began to move from. He repeated his experiments several days successively, until he became familiar with the operation of the machinery, and the movements of the boat. He found that she was as obedient to her helm under water, as any boat could be on the surface; and that the magnetic needle traversed as well in the one situation as the other.

"On the 7th of August Mr. Fulton again descended, with a store of atmospheric air compressed into a copper globe of a cubic foot capacity, into which two hundred atmospheres were forced. Thus prepared, he descended with three companions to the depth of about five feet. At the expiration of an hour and forty minutes, he began to take small supplies of *pure* air from his reservoir, and did so as he found occasion, for four hours and twenty minutes. At the expiration of this time he came to the surface, without having experienced any inconvenience from having been so long under water.

"Mr. Fulton was highly satisfied with the success of these experiments; it determined him to attempt to try the effects of these inventions on the English ships which were then blockading the coast of France, and were daily near the harbor of Brest.

"His boat at this time he called the submarine boat, or the plunging boat; he afterwards gave it the name of the Nautilus; connected with this machine were what he then called submarine bombs, to which he has since given the name of torpedoes. This invention preceded the Nautilus. It was, indeed, his desire of discovering the means of applying his torpedoes, that turned his thoughts to a submarine boat. Satisfied with the performance of his boat, his next object was to make some experiments with the torpedoes. A small shallop was anchored in the roads, with a bomb containing about twenty pounds of powder; he approached to within about two hundred yards of the anchored vessel, struck her with the torpedo, and blew her into atoms. A column of water and fragments was blown from eighty to one hundred feet in the air. This experiment was made in the presence of the prefect of the department, Admiral Villaret, and a multitude of spectators.

* "Robert Fulton," says Edward Everitt, "was a portrait painter in Pennsylvania, without friends or fortune." A school-fellow of Fulton says, "Robert Fulton was a school-boy in Lancaster, Pennsylvania; his mother then a widow. He borrowed paints and brushes of another, and soon excelled, but neglected his books. He was sent to Philadelphia, to a silversmith; but not liking, he went to London."

"The experimental boat of Mr. Livingston and Mr. Fulton was completed early in the spring of 1808: they were on the point of making an experiment with her, when one morning, as Mr. Fulton was rising from a bed in which anxiety had given him but little rest, a messenger from the boat, whose precipitation and apparent consternation announced that he was the bearer of bad tidings, presented himself to him, and exclaimed in accents of despair, "Oh, sir, the boat has broken in pieces and gone to the bottom!" Mr. Fulton, who himself related the anecdote, declared that this news created a despondency which he had never felt on any other occasion; but this was only a momentary sensation. Upon examination, he found that the boat had been too weakly framed to bear the great weight of the machinery, and that in consequence of an agitation of the river by the wind the preceding night, what the messenger had represented had literally happened. The boat had broken in two, and the weight of her machinery had carried her fragments to the bottom. It appeared to him, as he said, that the fruits of so many months' labor, and so much expense, were annihilated; and an opportunity of demonstrating the efficacy of his plan was denied him at the moment he had promised it should be displayed. His disappointment and feelings may easily be imagined; but they did not check his perseverance. On the very day that this misfortune happened, he commenced repairing it. He did not sit down idly to repine at misfortunes which his manly exertions might remedy, or waste, in fruitless lamentations, a moment of that time in which the accident might be repaired. Without returning to his lodgings he immediately began to labor with his own hands to raise the boat, and worked for four and twenty hours incessantly, without allowing himself rest, or taking refreshment: an imprudence which, as he always supposed, had a permanent bad effect on his constitution, and to which he imputed much of his subsequent bad health.

"The accident did the machinery very little injury; but they were obliged to build the boat almost entirely new; she was completed in July: her length was sixty-six feet, and she was eight feet wide. Early in August Mr. Fulton addressed a letter to the French National Institute, inviting them to witness a trial of his boat, which was made in their presence, and in the presence of a great multitude of the Parisians. The experiment was entirely satisfactory to Mr. Fulton, though the boat did not move altogether with as much speed as he expected. But he imputed her moving so slowly to the extremely defective fabrication of the machinery, and to imperfections which were to be expected in the first experiment with so complicated a machine, but which he saw might be easily remedied."

Mr. Fulton returned home in 1806, and renewed his efforts to prove that he could destroy vessels by invisible means, and the next year he made an experiment upon a hulk anchored in New-York harbor for the purpose. The owner of the hulk having consented, the experiment was fully successful. In 1810 the United States made an appropriation for trying the effect of torpedoes and other submarine explosions. The experiments were made upon the sloop of war Argus, Capt. Lawrence, and failed. Mr. Fulton's friends still thought, or said, that the experiments would be successful. Commodore Rogers thought and reported them altogether impracticable.

We all know that Fulton was not the first who propelled a boat by steam, but we know that we owe to him those inventions which remedied the failures of former experimenters, and, in fact, by his genius and skill, created the steamboat. Fulton was assisted by friends with advice and funds; but Fulton's was the mind and the perseverance which gave to the world a mode of conveyance, for speed, ease, and certainty, so powerful in its influence on travelling and commerce, as to have advanced civilization on its destined progress beyond any former gift bestowed upon man, printing excepted. He thus writes to his friend, Joel Barlow: "New-York, August 2, 1807. My dear friend, my steamboat voyage to Albany and back has turned out rather more favorable than I had calculated. The distance from New-York to Albany is 150 miles; I ran it up in thirty-two hours, and down in thirty hours, the latter is five miles an hour. I had a light breeze against me the whole way going and coming, so that no use was made of my sails, and the voyage has been performed wholly by the power of the steam engine. I overtook many sloops and schooners, beating to windward, and passed them as if they had been at anchor.

"The power of propelling boats by steam is now fully proved. The morning I left New-York, there was not perhaps thirty persons who believed that the boat would move a mile an hour, or be of the least utility; and while we were putting off from the wharf, which was crowded with spectators, I heard a number of sarcastic remarks. This is the way, you know, in which ignorant men compliment what they call philosophers and projectors.

"Having employed much time and money, and zeal, in accomplishing this work, it gave me, as it will you, great pleasure to see it so fully answer my expectations. It will give a cheap and quick conveyance to merchandise on the Mississippi and Missouri, and other great rivers, which are now laying open their treasures to the enterprise of our countrymen. And although the prospect of personal emolument has been some inducement to me, yet I feel infinitely more pleasure in reflecting with you on the immense advantage my country will derive from the invention."

Thus the first voyage, and that perfectly successful, was made in thirty-two hours from New-York to Albany. In consequence of this first voyage it is now made in nine hours.

Surely the discoverer enjoys a pleasure greater and purer than any other human being can enjoy. We mean the discoverer who has just views of the great advantages which will result from the successful termination of his researches. Not to mention many others, let us reflect upon the pure and intense joy of Columbus, when he landed on St. Salvador—of Franklin, when he succeeded in drawing the lightning, innocuous, from the thunder cloud—of Worcester, when convinced of the power of steam—and of Fulton, when he saw, felt, knew, that he could triumph over winds and tides, by machinery of his own invention—when he heard the acclamations of the scoffers, and received the praises of the wise.

"He published his work, entitled 'Torpedo War, or Submarine Explosions.' He adopted as a motto for his publication, his favorite sentiment, 'The liberty of the seas will be the happiness of the earth.' He addressed it to the President of the United States, and to the members of both houses of Congress. It contained a description of the experiments he had made, of his engines as he had improved them, and of the manner in which they might be used. He expressed the most sanguine expectations as to the effects they would produce, when they had attained the improvements of which he believed them capable, and had the advantage of practice, by which gunnery, and other modes of warfare, had been brought to their present perfection." Fulton's ideas respecting submarine guns led to the invention of the steam frigate.

"He communicated to Mr. Jefferson an account of his experiments on submarine firing, with drawings of his various plans. Mr. Jefferson expressed himself much pleased with this novel mode of maritime warfare, and assured Mr. Fulton that he would recommend it to the attention of government.

"It is curious to observe how Mr. Fulton's projects grew one out of another.

"The submarine guns gave rise to the steam man-of-war.

"It having been suggested by a distinguished naval officer, before alluded to, that in approaching an enemy so near as was necessary to give effect to submarine cannon, the vessel, if she was rigged in the ordinary way, would be liable to be entangled with her adversary; to meet this objection, Mr. Fulton proposed to move the vessel by steam. His reflections on this project, and what he saw of the performance of so large a vessel as the Fulton, her speed, and the facility with which she was managed, led him to conceive, that a vessel of war might be constructed, in which, to all the advantages possessed by those now in use, might be added the very important ones which she would derive from being propelled by steam as well as by the winds."

The character of Mr. Fulton is elucidated by an incident given thus in Colden's life of him:

"We must all remember how long, and how successfully, Redheffer had deluded the Pennsylvanians by his perpetual motion.

"Many men of ingenuity, learning, and science, had seen the machine: some had written on the subject; not a few of these were his zealous advocates; and others, though they were afraid to admit that he had made a discovery which violated what were believed to be the established laws of nature, appeared also afraid to deny what the incessant motion of his wheels and weights seemed to prove. These contrived ingenious theories, which were hardly less wonderful than the perpetual motion itself. They supposed that Redheffer had discovered a means of developing gradually some hidden power, which, though it could not give motion to his machine for ever, would keep it going for some period, which they did not pretend to determine.

"One of these perpetual motions commenced its career in this city* in eighteen hundred and thirteen. Mr. Fulton was a perfect unbeliever in Redheffer's discovery, and although hundreds were daily paying

* New-York.

their dollar to see the wonder, Mr. Fulton could not be prevailed upon for some time to follow the crowd. After a few days, however, he was induced by some of his friends to visit the machine. It was in an isolated house in the suburbs of the city.

"In a very short time after Mr. Fulton had entered the room in which it was exhibited, he exclaimed, 'Why, this is a crank motion.' His ear enabled him to distinguish that the machine was moved by a crank, which always gives an unequal power, and therefore an unequal velocity in the course of each revolution: and a nice and practised ear may perceive that the sound is not uniform. If the machine had been kept in motion by what was its ostensible moving power, it must have had an equable rotary motion, and the sound would have been always the same.

"After some little conversation with the showman, Mr. Fulton did not hesitate to declare that the machine was an imposition, and to tell the gentleman that he was an impostor.

"Notwithstanding the anger and bluster which these charges excited, he assured the company that the thing was a cheat, and that if they would support him in the attempt, he would detect it at the risk of paying any penalty if he failed.

"Having obtained the assent of all who were present, he began by knocking away some very thin light pieces of lath, which appeared to be no part of the machinery, but to go from the frame of the machine to the wall of the room, merely to keep the corner posts of the machine steady.

"It was found that a catgut string was led through one of these laths and the frame of the machine to the head of the upright shaft of a principal wheel; that the catgut was conducted through the wall, and along the floors of the second story, to a back cock-loft, at a distance of a number of yards from the room which contained the machine, and there was found the moving power. This was a poor old wretch, with an immense beard, and all the appearance of having suffered a long imprisonment; who, when they broke in upon him, was unconscious of what had happened below, and who, while he was seated on a stool, gnawing a crust, was with one hand turning a crank.

"The proprietor of the perpetual motion soon disappeared. The mob demolished his machine, the destruction of which immediately put a stop to that which had been, for so long a time, and to so much profit, exhibited in Philadelphia."

In the year 1806, Mr. Fulton married Miss Harriet Livingston, daughter of Walter Livingston, Esq. One son and three daughters were the fruit of his marriage. In 1815 Mr. Fulton was examined as a witness in a steamboat cause, at Trenton.

"When he was crossing the Hudson to return to his house and family, the river was very full of ice, which occasioned his being several hours on the water in a very severe day. Mr. Fulton had not a constitution to encounter such exposure, and upon his return he found himself much indisposed from the effects of it. He had at that time great anxiety about the steam-frigate; and after confining himself for a few days, when he was convalescent, he went to give his superintendence to the artificers employed about her: he forgot his debilitated state of health in the interest he took in what was doing on the frigate, and was a long time, in a bad day, exposed to the weather on her decks. He soon found the effects of this imprudence. His indisposition returned upon him with such violence as to confine him to his bed. His disorder increased, and on the twenty-fourth day of February, eighteen hundred and fifteen, terminated his valuable life.

"It was not known that Mr. Fulton's illness was dangerous till a very short time before his death, which was unexpected by his friends, and still more so by the community. As soon as it was known, all means were taken to testify, publicly, the universal regret at his loss, and respect for his memory. The newspapers that announced the event, had those marks of mourning which are usual in our country when they notice the death of public characters. The corporation of our city, the different literary institutions, and other societies, assembled, and passed resolutions expressing their estimation of his worth, and regret at his loss. They also determined to attend his funeral, and that the members should wear badges of mourning for a certain time.

"As soon as the legislature, which was then in session at Albany, heard of the death of Mr. Fulton, they expressed their participation in the general sentiment by resolving that the members of both houses should wear mourning for some weeks.

"This is the only instance we believe of such public testimonials of regret, esteem, and respect, being offered on the death of a private citizen, who never held any office, and was only distinguished by his virtues, his genius, and the employment of his talents.

"He was buried on the 25th day of February, 1815. His corpse was attended from his last residence, (No. 1 State street,) by all the officers of the national and state governments then in the city, by the magistracy, the common council, a number of societies, and a greater number of citizens than had been collected on any similar occasion. From the time the procession began to move, till it arrived at Trinity Church, minute guns were fired from the steam-frigate and the West Battery. His body, in a leaden coffin, covered with plain mahogany, on which is a metal plate engraved with his name and age, is deposited in a vault belonging to the Livingston family."

As a painter Mr. Fulton does not rank high. Probably his best picture is the portrait of his friend Barlow. We owe to him the splendid edition of Barlow's Columbiad. Mr. Colden says:

"The elegant plates which adorn that work were executed under the superintendence and advice of Mr. Fulton. He paid about five thousand dollars for the paintings, the plates, and letter press, which gave him a property in the publication. He relinquished, by his will, all his right to the widow of Mr. Barlow, with the reservation of fifty of the proof and embellished copies of the work. It was printed in Philadelphia, in quarto, and published in 1807; it is dedicated by Mr. Barlow to Mr. Fulton, in such terms as evince the strong attachment which subsisted between these men of genius. The original paintings, from which the prints of the Columbiad were engraven, form a part of the handsome collection which Mr. Fulton has left to his family."

We owe to him the introduction into this country of the pictures painted by his friend and master, West, from Lear and Hamlet, for Boydell's Shakspeare. The Lear cost him two hundred and five guineas, and the Ophelia one hundred and twenty-five, at Boydell's sale. At the same time he purchased a fine picture by Raphael West, from "As you like it." West's pictures were painted for Boydell, and his great project failing, the government allowed his pictures to be disposed of by a lottery. Whether Fulton was an adventurer in this lottery, or purchased of the owner of a prize, we know not. That he did not purchase of the Royal Academy is certain, or at any sale of their pictures. My impression is that he was an adventurer in the lottery, and gained these paintings as a prize. The inaccuracy of one part of Mr. Colden's statement renders further inaccuracy probable.

He endeavored to persuade his countrymen to purchase such pictures of West's as were at the artist's disposal, and he wrote to the citizens of Philadelphia thus:

"I now have the pleasure to offer you a catalogue of the select works of Mr. West, and with it to present you the most extraordinary opportunity that ever was offered to the lovers of science. The catalogue referred to is a list of all Mr. West's productions, portraits excepted. No city ever had such a collection of admired works from the pencil of one man; and that man is your fellow-citizen. The price set on the collection is fifteen thousand pounds sterling, a sum inconsiderable when compared with the objects in view, and the advantages to be derived from it."

Mr. Fulton was six feet in height, slender in his form, easy and graceful in his deportment. His countenance was animated, and his eyes and forehead betokened genius and unconquerable ardor. He was a kind father, a fast friend, an enlightened philosopher, and a good republican. The arts of America are indebted to him much—but the science and happiness of the world more.

Thus far we have copied Mr. Dunlap's Memoir of Fulton. As there are several claimants for the honor of first introducing steam for navigating purposes, we shall present our readers with extracts from Mr. Bowie's pamphlet advocating Mr. Symington's views, and afterwards insert portions of an article in Chambers' Edinburgh Journal, stating that to Mr. Taylor, the schoolfellow and associate of Mr. Symington, the honor belongs. Mr. Bowie, in reply to the article in Chambers' Journal, says:

A very cursory perusal will show its utter worthlessness, and even to the veriest tyro in mechanics, render its folly and presumption apparent.

The letter and extract, with Mr. Symington's signature appended, can be explained in a manner any thing but creditable to the reputation of Taylor; and the assertion that he superintended the construction of the engine is at variance with the fact admitted, that it was upon the same principle as one for which Mr. Symington had previously procured a patent. Besides, Taylor has still further shown that he was unfit for the office of superintending the construction of the engine alluded to, by the absurd declaration that Mr. Symington in his invention had thrown off the air pump.

Notwithstanding the hollowness of Tay-

lor's pretensions, and notwithstanding Mr. Goulbourn's refusal to allow Mr. Symington's manly petition for parliamentary investigation, as to the justice of his claims, to be presented, the relatives or friends of the former individual,—described as an *amateur* by Captain Basil Hall,—have succeeded, by "*stealthy steps*" and secret influence, in obtaining for his widow a "*surreptitious*" pension from government of fifty pounds per annum. Surely such a glaring act of injustice and misappropriation of the public money deserves the reprobation of every honorable and well constituted mind.

[From Bowie's Narrative.]

William Symington was a native of Leadhills, county of Lanark, Scotland. While receiving an education to qualify him for the Church, an early predilection for mechanical philosophy led him to abandon his theological studies, and pursue with ardor those connected with his favorite science. His genius soon attracted the notice and secured the patronage of Gilbert Meason, Esq. then connected with the Wanlock Head lead mines. Before completing his twenty-first year, Mr. Symington had made several improvements on the steam engine; and, having protected them by His Majesty's Royal Letters Patent, constructed and introduced engines on his principle into different parts of England and Scotland.

As early as the year 1784, amidst the wild bleak scenery of the country he inhabited, and when he knew nothing of any attempts which might have been made to realize such an idea, it occurred to him that steam might be rendered available for the propulsion of locomotive carriages. He immediately set about embodying his idea; and, in 1786, submitted to the inspection of the professors and other scientific gentlemen in Edinburgh, a working model of a steam carriage, which afforded such proofs of capability, that he was warmly urged by all present to carry his invention into full effect.

While the model was in Edinburgh, Patrick Miller, Esq., of Dalswinton, who had heard of it from Mr. James Taylor, tutor in his family, who had been a schoolfellow of Mr. Symington, called at Mr. Meason's, and having minutely inspected it, expressed himself highly pleased with the construction and performance. In the course of conversation, Mr. Miller mentioned that he had spent much time in making experiments, for the propelling of vessels upon water by wheels, instead of sails or oars: and that they had been put in motion by applying manual strength to turning a handle or winch. He also said he had attempted to work them by the power of horses; as he had heard something of the same kind had been accomplished, even by means of oxen, in America. It occurred to Mr. Symington, and he stated his opinion to Mr. Miller, that a steam engine might be constructed which would propel a vessel, by communicating a rotatory motion to the paddles by the alternate action of two ratchet wheels, in the same manner as in the model of the steam carriage, then before them. Mr. Miller said he considered such a thing impracticable; and inquired how it would be possible to work such an engine on board, without setting the vessel on fire?

The description given of the model, and the manner in which it was intended to apply the power of steam, seemed to convince Mr. Miller of the practicability of the project: and he observed, that if Mr. Symington thought he could construct a steam engine, and work it with safety on board of a vessel, an experiment should be made, on a small scale, as soon as he, (Mr. Symington,) could possibly attend to it: and it was explicitly understood that the plan and construction of the engine, the mode of producing rotatory motion, and the means to be adopted for guarding against danger, were to be left entirely to Mr. Symington.

Soon after this, he proceeded to construct a small engine on a similar principle to one for which he had previously procured a patent. It was executed under his immediate inspection, and fitted on board a small double keeled vessel, lying upon a lake, near the House of Dalswinton. With this vessel a trial was made of the powers of the invention, in the autumn of 1788, in presence of Mr. Miller, and various persons of respectability; when the boat was propelled in so satisfactory a manner, that it was immediately determined to commence another experiment, upon a more extended scale.

In the month of October, 1789, a second exemplification* was afforded on the Forth and Clyde inland navigation, in presence of hundreds of spectators, who lined the banks of the canal, to witness what seemed so extraordinary an attempt; and who testified by acclamation their satisfaction at its result. Mr. Miller, Messrs. John Adam, of Blairadam, John Balfour, of Pilrig, Ambrose Tibbetts, members of the Carron Company, James Taylor, and David Drysdale, an experienced seaman, who took charge of the helm, were on board. The boat glided along, propelled at the rate of nearly six miles an hour; and all parties interested declared their conviction of the success of the experiment.

After an interval of ten years, the late Thomas Lord Dundas, of Kerse, applied to Mr. Symington, and having alluded to his former experiments, expressed a wish that he would employ himself in constructing a vessel, capable of being propelled by the power of steam, and superseding the use of horses, in dragging vessels upon the Forth and Clyde canal; of which canal his lordship was an extensive proprietor. Accordingly, under the auspices of that intelligent nobleman, a series of experiments was commenced in January, 1801, and continued until April, 1803. The cost of these experiments somewhat exceeded £7,000; but they placed beyond the possibility of doubt the practicability of steam navigation.

Lord Dundas was so convinced of the efficiency of Mr. Symington's exemplification, that he requested a complete model of the steam engine and boat, (with a set of ice breakers attached,) should be made. This was done, and Mr. Symington proceeded to London and presented it to his lordship.

During the time that the boat lay at Bainsford, Henry Bell, of Glasgow, was frequently beheld inspecting it; and, in 1811, he, in conjunction with others, constructed the Comet steamboat, which in that year first plied upon the Clyde.

Much praise has been awarded to Bell for the introduction of steam navigation; but how far he deserves it, the following facts will elucidate: Notwithstanding the many opportunities he had enjoyed,—notwithstanding his having voyaged to America, to instruct, or to be instructed by, the celebrated Fulton,—the Comet was far inferior in her performance, even to Mr. Symington's second exemplification. When the Comet commenced her operations as a passage boat upon the Clyde, she possessed four insignificant paddle-wheels; and took nine hours to sail from Port Glasgow to Glasgow.

* * * * * * *

In concluding this narrative, it is but doing an act of justice, to place on record the principal intelligent and spirited individuals alluded to in the preface.

It has been shown that Mr. Meason proved a warm and zealous patron; that Mr. Miller afforded the means of bringing the invention into notice; and that Lord Dundas perseveringly aided to bring it to the perfection which it attained. But it has not been stated, although deserving of acknowledgment, that his lordship, during the remainder of his life, frequently and generously befriended Mr. Symington.

For Mr. Bruce, the celebrated Abyssinian traveller, Mr. Symington entertained the strongest attachment. Mr. Bruce was so sensible of his worth, that from the time they first became acquainted, until death put an end to their intimacy, they were almost inseparable. And it was supported in the arms of Mr. Symington, that he who had travelled so far, and encountered dangers so many, yielded up his spirit.

To Sir Ronald Ferguson, Sir George Clerk, Prof. Leslie, Messrs. Gilbert Laing Meason, and —— Jardine, engineer, Mr. Symington considered himself under deep obligations for the interest they took in his welfare; and to Mr. James Walker he owed the obtaining of a small donation from the London steamboat proprietors. The Messrs. Staintons, of Carron, were also kind and attentive to his interests; and Mr. Robert Wight, accountant, of Edinburgh, rendered him many acts of friendship, and much valuable assistance.

Mr, Symington during life ceased not to remember his benefactors, and it may, with truth, be said, whatever failings he may have possessed, ingratitude was not among the number.

We add the following corroborative testimony, including Judge Clerk's opinion when at the bar:

"Opinion of John Clerk, Esq., advocate, regarding William Symington's specification and patent for steamboats.

"1. I am of opinion there can be no well founded objection to the specification: it describes, in proper terms, the invention for which the patent was granted.

"2. The notice the patentee gives how the same is to be performed is by no means irrelative; but, on the contrary, is requisite and proper.

"3. If the proprietors, or builders of steamboats, refuse a reasonable compensation, the patentee is entitled to stop them by an interdict; but I would not advise that measure. He should rather bring an action of damages against them, for having invaded his privilege, and benefitted themselves by his invention. (Signed) JOHN CLERK.

"Edinburgh, June 30, 1834."

"It is much to be regretted that there existed not enterprise enough at that time, in Scotland, to encourage the ingenious artisan to repeat his experiments on the Clyde. All the subsequent improvements, however, in steam navigation, may be fairly traced to Mr. Symington's attempt; and we cannot

help thinking that he has a strong claim on the national gratitude. He is still alive, and we fear not in the most flourishing circumstances. Should the state decline rewarding such meritorious services, the opulent proprietors of steamboats might well evince their liberality and discernment, by bestowing on him some recompense."—[Article on steam navigation—Supplement to the Encyclopædia Britannica.]

"It is remarkable, also, that the unfortunate Symington, who has such claims to the original invention of the steamboat, had previously contrived a similar application for the propelling of carriages; and actually exhibited, in the year 1787,* in the house of Mr. Gilbert Meason, in Edinburgh, the first model of a steam carriage that was, perhaps, ever seen."—[Article on locomotive carriages—Quar. Rev., March, 1830, page 380.]

"Mr. Symington took out a patent for steamboats in the year 1801; and he has the undoubted merit of being the first person who applied the power of the steam engine to produce motion in vessels."—[Capt. Basil Hall's Travels in North America, Vol. 2, page 387.]

"The earliest successful application of steam appears to have been made on the Forth and Clyde inland navigation by Mr. Symington."—[E. Galloway on the Steam Engine.]

"Several attempts have been made to apply the force of steam to the purpose of propelling boats in canals; and there seems to be no reason to think the undertaking by any means liable to insuperable difficulties. Mr. Symington appears to have had considerable success; and the method that he has employed for making a communication between the piston and the water wheel is attended with many advantages."—[Journal of the Royal Institution of Great Britain, Vol. 1, 1802, p. 195.]

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[From Chambers' Edinburgh Journal.]

The credit of the inestimable invention of applying steam to the purposes of navigation has now been claimed by so many pretenders, that we believe the public are at this moment as much puzzled to whom to assign the palm as they have all along been to penetrate the mystery of the authorship of Junius. Independent of the numerous claimants in our own country, our brethren on the other side of the Atlantic have not been slow to assert their title: but although it be true that the great and important results likely to accrue from the discovery were first fairly developed on the Hudson, we are perfectly prepared to show, that *there* certainly the idea did not originate; that it was altogether of British, or rather of Scottish origin; and from documents now in our possession, we have little doubt of being able to set this disputed question for ever at rest, to the satisfaction of the public, and to prove that to the individual whose name stands at the head of this memoir, the world is indebted for all the benefits they enjoy by means of that wonderful fabric, the Steamboat.

In 1787, Mr. Miller engaged in a sailing match with a party of gentlemen at Leith, in his double vessel, against a first-rate sailing wherry. Mr. Taylor was, of course, on board; and to this circumstance may be attributed the primary projection of applying the steam-engine to navigation. Mr. Miller's vessel won the day, and Mr. Taylor felt perfectly convinced of the efficiency of the *principle* by which it was wrought; but, having taken a spell at the wheels, he found the labor so excessive, that he told Mr. Miller, that, unless he could apply a more commanding power than that of men, the invention would be of little use. Mr. Miller acknowledged the justice of the observation, and requested the aid of his cogitations on the subject, adding, that the only other plan he himself could think of was the employment of the capstan. Mr. Taylor's thoughts forthwith became steadfastly directed to the subject; and after much reflection, and many conversations with his employer, he at last suggested the steam-engine. Mr. Miller started many objections on the score of the danger of fire, &c.; but at last, after great persuasion, and not until Mr. Taylor had demonstrated by drawings the practicability of connecting the engine with the wheels, he agreed to have a small engine built, and to give the plan a trial. Accordingly, on the family coming into Edinburgh for the winter, from Dalswinton, Mr. Taylor was requested to find out a proper engineer for the purpose; and a young acquaintance of his, named William Symington, employed at the lead mines at Wanlockhead, Dumfrieshire, and who had invented a new construction of the steam-engine, (by throwing off the air pump,) being at the time in Edinburgh for his education, he recommended and introduced him to Mr. Miller. It was then agreed that the experiment should be made on the lake at Dalswinton, in the ensuing summer, (1788.)* In the autumn, Symington was sent for to Dalswinton to put the parts together, and fit the engine upon the vessel, a handsome double pleasure-boat. The experiment which followed succeeded perfectly; the vessel moving at the rate of five miles an hour, notwithstanding the smallness of the cylinders, which were only five inches in diameter. This trial took place in presence of hundreds of people, and an account of it, drawn up by Mr. Taylor, was inserted in the Dumfries Journal the same month, (Oct.) It was also noticed in the Scots' Magazine of the following November.

In 1801 or 1802, Mr. Symington, who, up to this time, had never laid the shadow of a claim to Mr. Taylor's invention, induced Lord Dundas to employ him to fit up a vessel for the Forth and Clyde Canal Company. This was accordingly done, but when set a-working, the agitation of the water and consequent washing of the banks, which it caused, was so alarming, that the Company would not permit it to be used again, and it was laid up at Lock Sixteen. It happened that, at this period, Mr. Fulton, the American engineer, was travelling in Britain for information in the line of his profession, and, whilst visiting the Carron works, in company with Mr. Henry Bell, then a carpenter at Glasgow, first heard of the steamboat. He forthwith applied to Mr. Symington, who resided in Falkirk, for leave to inspect the boat, which was immediately complied with, and every information readily furnished. The consequence was, that both Mr. Fulton and Mr. Bell immediately conceived the project of separately turning the invention to their own account. Mr. Fulton launched his first boat on the Hudson in 1807, and he and his country claimed the merit of the invention. Mr. Bell was somewhat tardier in his movements, and it was not until 1812 that his first steam-vessel, the Comet, was set a-going on the Clyde—when he, like Mr. Fulton, also claimed the merit of the invention. In the mean time it appears that Mr. Symington, too, not only laid pretensions to it, but had secretly taken out a patent so far back as the year 1802 or 1803. This stealthy step, however, of which neither Mr. Taylor nor Mr. Miller had the slightest suspicion, serving him nothing: for when he raised an action of damages upon it in 1815, against the proprietors of the Clyde steamboats, they defended themselves successfully on the plea that he was not the original inventor. Mr. Symington's unfair and continued interference, and the discovery of the surreptitious patent, of which Mr. Taylor was not made aware, until long afterwards, and not until many years after Mr. Miller's death, seem to have called forth an indignant remonstrance from Mr. Taylor, as we find by a letter of Mr. Symington, dated February, 1821, evidently intended to soothe his irritation, and promising to pay him one-half of the interest and proceeds of the patent.

Very shortly after Mr. Taylor's decease, application was made to the government, by one of his relatives, on behalf of his widow and family, in which some pretensions, brought forward at the time by Mr. Symington, in a letter to the editor of the Edinburgh Evening Courant, were most satisfactorily refuted. In this communication to government, also, a letter was quoted, penned so far back as the year 1787, by Mr. Symington to Mr. Taylor, in which that gentleman so explicitly acknowledges the originality of the conception of the applicability of the steam engine to the purposes of navigation, as belonging to the subject of this memoir, that it seems altogether incomprehensible how he could ever afterwards presume to attempt the appropriation of it to himself. An extract from this letter of Mr. Symington, as well as of his promissory epistle to Mr. Taylor, of February, 1821, is subjoined; and it is thought proper here to state, that the originals of these, as well as of many other communications between the parties on the same subject, have been submitted to the inspection of one of the editors of this publication. Mr. Symington subsequently attempted to renew his pretensions in a communication to the editor of the Ayr Advertiser; but these were so thoroughly set at rest by a respondent in the same publication, that it is unnecessary here to allude to them more particularly.

"I must make some remarks on your summer's invention, which, if made to perform what its author gives it out for, will undoubtedly be one of the greatest wonders hitherto presented to the world, besides being of considerable emolument to the projector. Great success to you, although overturning my schemes; but take care we do not come upon your back, and run away with them by some improvement. Your brother John gives a kind of credit to your report, which, for some reasons, I did not discourage. I must conclude, &c. &c.

(Signed) WM. SYMINGTON."

"Sir,—In terms of our former agreement, when making experiments of sailing by the steam engine, I hereby bind and oblige myself to convey to you, by a regular assignation, the one-half of the interest and proceeds of the patent taken by me upon that invention, when an opportunity occurs of executing the deed, and when required. I am, Sir, your obedient servant, (Signed) WM. SYMINGTON.

"To Mr. James Taylor, Cumnock."

For further information respecting Mr.

* And in 1786.

* Referred to at page 164, vol. iv.

Taylor's claims to be the inventor, see page 164, vol. iv., of the Mechanics' Magazine.

NEW-YORK AMERICAN.

DECEMBER 27—31, 1834.

LITERARY NOTICES.

LETTERS TO ADA, from her brother-in-law; by the author of *Father Rowland*, &c. 1 vol. New York: *Harper & Brothers.*—Catholicism has a copious armory, and weapons fitted to all services. This is a light and withal somewhat sentimental and poetical appeal to young misses, "my Adas," and such like, whom honied words, and skilful flattery, can influence to adopt the creed and practices of the "Mother Church."

RECOLLECTIONS OF A HOUSEKEEPER: by Mrs. CLARISSA PACKARD. 1 vol. New York: Harper & Brothers.—This is not, as from the title some might suppose, a book of receipts for puddings and pies, cakes and jellies, but of very good moral instruction agreeably imparted. Not the least interesting and well written chapter is that of "reading a lesson of temperance."

THE CLASSICAL LETTER-WRITER; by the author of The Young Man's Own Book. 1 vol. Philadelphia: Key & Biddle.—A very prettily bound and printed little volume, designed for the use of young persons of both sexes, to give them ease and facility in letter writing,—a charming accomplishment by the way,—by setting before them a series of well selected letters on different subjects, by eminent persons, and accompanying them with some judicious and plain rules of composition. It is quite a book to be sought for.

THE SUNDAY SCHOOL TEACHER'S COMPANION. New York: N. B. HOLMES.—This excellent little volume is compiled, as far as we can judge, with much discretion, the fruit of experience as a Sunday School Teacher, from various publications, heretofore made with the same object. It is, as the compiler says, not a book to read through, and then cast aside, but to be kept as a companion to be consulted, whenever the teacher is in doubt, or hesitation. To this end, the extracts made are adapted to various heads, each one of which is enumerated in the index. We commend this little volume to Sunday School Teachers.

THE AMERICAN POPULAR LIBRARY. Conducted by an association of gentlemen. 1 vol. Boston: J. Allen & Co. New York: Wiley & Long.—Here we have a new enterprize for the amusement and instruction of the community. The design of the conductors of it is to publish a series of volumes under the above title, not to consist of American works, nor to exclude them, but to embody such selections as shall be of enduring value, and not merely attractive by reason of their novelty. The conductors have another aim, in which we most cordially desire they may be encouraged to persevere, that of combining elegant literature and pure Christianity. Too little has this been attended to, especially in our country, where, because no religion is established by law, it seems to be considered an evidence of freedom from prejudice, and almost of patriotism, to avoid any reference, in works of taste, to topics connected with our Faith. We hail, therefore, the expression by the Editors of their purpose "to promote by their publication, as far as shall be in their power, the union of polite literature, sound learning, and Christian morals."

It is intended that a volume shall be issued every two or three months, of nearly uniform size, and each for sale separately. The volume before us, the first in the series, is entitled "Leisure Hours," composed of various tales from various authors, intended and calculated to be what the title expresses, a companion for "Leisure Hours." Some of these tales have been published in different journals among us before: the mass, however, are not accessible to all; and as a collection, we are sure this volume will please.

SABBATH-DAY BOOK. 1 vol.
WEEK-DAY BOOK. 1 vol.
FAMILY STORY BOOK. 2 vols.

ADAM THE GARDENER. 1 vol; by Charles Cowden Clarke, author of Tales in Prose from Chaucer.—Boston: J. Allen & Co. New York: Wiley & Long.

In addition to the undertaking to furnish a popular library for adult readers, we have here a series of works for children and young persons published under the revision of the same association of gentlemen. The first four volumes are partly original and partly compiled from other sources. They are well printed, have a few wood cuts scattered through the pages, and every where the occasional seriousness of the lessons inculcated is relieved by apposite stories and anecdotes. The same regard, too, is had in these minor works to purity of thought as well as of language, and to the importance of striving to make amusement and instruction go hand in hand with a sound and moral religious tone.

The last volume, "Adam the Gardener," is a republication from England, and is the first in a series to be called the "*Juvenile* Popular Library." It is a charming little book, which, while giving really useful knowledge and directions about gardening, has so many stories interwoven, so much good sense and useful information diffused throughout, as to render it quite an agreeable book, both for children and young persons, and those who are older. The directions about gardening, &c. being adapted to the meridian of England, must of course be applied in this country with some discretion, though in the Southern parts of this State, and still more so in the States immediately south of us, they will not need probably to be much varied.

FAMILAR CONVERSATIONS, EXPLANATORY OF THE NEW TESTAMENT. New-York: J. K. PORTER.—This is a little pocket volume, well designed, and well executed, conveying, in the form of a dialogue, a connected view of the books and personages of the New Testament.

THE PORTION OF THE SOUL; or, Thoughts on its Attributes and Tendencies, as indicating its Destiny. By the Rev. HERMAN HOOKER. Philadelphia: Henry Perkins.—The discussion in this volume, according to the preliminary notice, "had its origin in the fact, that the Scriptures seem often to speak of a *communicable* fulness of God, as the proper and highest good of rational creatures, and that all experience that the soul is empty, and cannot find what is suitable to fill it, in any of the forms of created good." This statement will suggest the course of thought which has been pursued.

THE YOUNG MAN'S POCKET COMPANION. New-York: DANIEL COOLIDGE.—This miniature pocket volume contains Washington's Farewell, the Constitution of the United States, the Declaration of Independence, the Articles of Confederation, and other high political matter, which no American should be ignorant of, and which could hardly be put together in a more convenient and portable form—a complete political *Vade-mecum*.

COMPLETE WORKS OF SIR WALTER SCOTT,—parts xxxix and xl—N. Y. CONNER & COOKE. These are parts of the 1st volume, and comprize *Auchindrane* or the Ayrshire tragedy, Paul's letter to his Kinsfolk, the Essay on Chivalry, Romance, the Drama &c.

THE YOUNG MUSCOVITE,—a novel,—edited by Capt. *Frederick Chamier*, R. N.—2 vols. N. Y. HARPER & BROTHER.

THE LAST DAYS OF POMPEII,—1 vol. N. Y. HARPER & BROTHERS.—We have no space to do more than mention these books to day, the first purporting to be a translation from a Russian novel, the second presenting in one well printed and handsomely got up volume, the last remarkable work of *Bulwer*,—for the exceedingly low price of *half a dollar!*

FOREIGN INTELLIGENCE.

FOREIGN NEWS.—The Havre packet ship Charlemagne, *Pierce* Master, in a passage hitherto, as far as we remember, unprecedented in shortness at this season of the year, brings Paris papers to 3d inst.

The Chambers had assembled, but the King, after the matter had, it would seem, been much discussed in his Cabinet, permitted the session to commence without any speech from the Throne, considering this as merely an adjourned meeting from July, when he delivered a speech. Nothing can mark more strongly an embarrassed position with regard to his Cabinet and the Chambers, than such a course, indicating, as it seems to do, a want of unity between the Sovereign and his Ministers, and no little distrust of the Chamber. *Non committal* is never the policy of the strong. The treaty with this country is evidently a stumbling block. It must, however, be got over. The shortness of the Charlemagne's run to the Westward, authorises the supposition that the vessels bound Eastward would have long passages, in which case the President's message may not reach France till the Chambers had considered and decided upon our treaty. On the presumption that their decision will be favorable, we hope such may be the case.

From England, although the accounts are a week later, there is no additional intelligence, as the leader of the new State team, Sir R. Peel, had not yet returned from Italy. The impression seems to be, however, that the Duke means to go for the people and reform!—at least so far as the abuses in the Church establishment are concerned. We shall believe when we see.

Not the least extraordinary item of intelligence is that of Lord Brougham's having *begged* of Lord Lyndhurst, his successor on the wool-sack, that he, Lord Brougham, might be appointed *Chief Baron of the Exchequer!* under the new administration. The Courier thus comments on this proceeding:

LONDON, Nov. 28.—It was whispered, on Wednesday, that Lord Brougham had made an offer to Lord Chancellor Lyndhurst, and we know that the Tories were then boasting of it. We did not ascertain the truth of the fact until yesterday morning, and we then heard it confirmed. The substance of the Lord Chancellor's reply to Lord Brougham's letter was as follows:—Lord Lyndhurst, after acknowledging the receipt of the letter, informed Lord Brougham that it was not intended to fill up the vacant offices until the return of Sir Robert Peel; that his Lordship's letter should be communicated to Sir Robert on his return; and that it would depend on Sir Robert, if Prime Minister, and on the individual who might then hold the Seals, whether his Lordship's offer should not be accepted.

Seriously, we view Lord Brougham's offer, in all the circumstances of the case, to be one of the most extraordinary that ever was made by any public man. How would the learned person have sneered and scoffed had Mr. Croker offered to continue to discharge the duties of Secretary to the Admiralty to Lord Grey, that the public might save his retiring pension, or had Lord Elden offered to undertake the duty of Chief Justice when Lord Denman was appointed. If Lord Brougham really wish to save the public money, he has only to do as Sir James Graham has done—refuse to take it. We might say more, but we content ourselves with merely remarking, that of the various characters in which Lord Brougham has performed, his friends certainly do not consider that of a Judge to be the one *in which he has been most successful.*—[Courie.]

The Duke of Gloster "Silly Billy" is dead: he s cousin to the King.

M. Rothschild was assaulted on the Exchange on

the 24th by a person named Priuen, who, at the moment of renewing his attacks was seized by a son of M. Rothschild and handed over to a constable.

PARIS, November 24th.—It is said to have been decided on Friday in the Council, that the Bill relative to the 25 millions claimed by the United States, shall be presented to the Chamber in one of its earliest sittings. M. Thiers, it is added, affirms that he shall be able to carry it.

The *Courier Francais* says, "the motive assigned by M. Bresson for declining the proffered seat in the Cabinet was the impossibility of his supporting the Government with respect to the payment of the 25 millions to the United States. M. Bresson asserts, that when he was Secretary of Legation in the United States, he had an opportunity of knowing that the money, if awarded, would not go to persons who had really experienced losses, and that he could not, as a Minister, support what he conceived to be contrary to the interests of France."

The *Courier Francais*, referring to the Ministerial explanations, says:—"Thus then the day for explanations is fixed. The public will be witness of the conflict, and will overwhelm with ridicule the braggadocios who may be afraid to enter the lists. The *tiers parti* will be victorious if it preserve its dignity and if its Chief should not abandon it. M. Passy, M. Etienne, will speak to the purpose. New speakers such as M. Sauzet may appear. The Opposition doubtless will afford its aid, but in order to give confidence to the hesitating mass of the Centres, M. Dupin must take part in the debate. He is the indispensable speaker of the future Ministry, and without him the Ministry cannot exist. The Chamber will make that reflection, and a wager may be laid that it will not follow the movement unless M. Dupin take the lead."

LATER FROM FRANCE.—Another arrival, the *Silvie de Grasse*, in the unprecedented passage at this season, of 19 days from Havre, brings us Paris papers to the 10th December.

We are disappointed in finding that up to the 9th, the King's Minister had not submitted any motion respecting the American treaty. On Monday the 8th various *projets de loi* were referred by the Chamber to Committees. Among them, one concerning the responsibility of Ministers, one concerning the accounts of 1832, another respecting the Custom House and tobacco, and the House then adjourned, as a House, though the members of the Committees meet meanwhile—to Saturday 13th. We are concerned greatly, thus to find the time fleeting, without any movement in our affairs—for we cannot but apprehend more and more, serious difficulties and embarrassments if the President's Message reach Paris, before the Legislature has passed on the indemnity.

FROM ENGLAND.—By the Montreal, from London, there are papers of the 8th December. Sir Robert Peel was hourly expected. He passed through Paris on the 7th December, having left Rome—where the messenger who was sent by the Duke of Wellington to ask his return, found him at a ball, at the banker's, Count Torlonia's—on the 26th November. Until he should be on the spot, nothing would be decided about the new ministry. Rumours, however, were frequent that overtures would be made to Lord Stanley and others who with him left the *Grey* ministry, on the Irish Church question, to join the Duke. If so, this would seem to preclude the idea of concession on that question.

Addresses to the King, against a Tory Ministry, were multiplying.

Advices from Lisbon to the 2d had been received by express from Falmouth, which announces that the Queen, Donna Maria, was married by proxy to the Duke of Leuchtenburgh (the Duke of Terceira officiating) on the 1st, when the greatest enthusiasm was displayed by all parties in Lisbon, and the public rejoicings are described as having been general and splendid.

A Portuguese corvette, with the Duke of Leuchtenburg on board, arrived at Gibraltar, on the 16th Nov.

SPAIN.—The Memorial des Pyrennees states a rumor of a sanguinary engagement between the forces of Mina and Zumalacarregui, in which the former was only saved by a vigorous charge from being made prisoner. The news of the dismissal of the remnant of Whigs from power in England, produced a panic among the Queenites in Madrid.

LONDON, Dec. 8.—*Two o'clock, p. m.*—We remain without any news, and business in the Money market is very limited, and without fluctuation. Consols being still 92 to 92 1-2 for the Account. Exchequer Bills are 40 41, and India Bonds 21 23 premium.

In the Foreign Market, Dutch Five per Cent. stock is 99 1-2 3 8; Two and a Half per Cent. 53 7-8 54; Belgian 98 to 1 2; Russian 106 to 1-2; Spanish 53 3 4 to 5.4; and Portuguese 84 to 1-4.

SUMMARY.

THE CREATOR.—"Who but the Omnipotent could have formed the sun, could have marked out its destined course, suspended it without support in the blue vault, saying, 'this be thy station, and this thy brilliant seat?' Could any power, save that of the Eternal, have created the earth, the moon, and all the planets? these undeviatingly perform their course within the orbits he has prescribed them."

LITTLE ROCK, Dec. 2.—*The Eclipse of the Sun*, on Sunday last, was witnessed here in its fullest grandeur. It commenced about half-past 11 A. M., and ended about 20 minutes after 2 P. M.—duration about 2 hours and 50 minutes. The obscuration of the sun was fully total for the space of 2 1-2 or 3 minutes, commencing about 3 minutes before 1 o'clck. One large star was visible for more than an hour, and we understand several others were seen. The weather was perfectly clear—not a cloud to be seen—affording a most excellent opportunity of witnessing this magnificent phenomenon of nature in all its sublimity.—[Arkansas Gazette.]

Gallantry.—A person advertises in the Daily Advertiser, that he has found a lady's kid glove, near Mrs. Le Cain's, Pearl street, and adds, whoever has lost the same if as beautiful as Cinderella, may have the glove and the hand of the gentleman who found it, if agreeable to her.

The passengers by the Rail Road Cars from Philadelphia, were, it seems, exposed to much inconvenience on Monday by reason of a deep snow drift in the track, which they encountered about four miles from Amboy. Unable to proceed, the passengers, including several ladies, remained all night in the Cars, and were only relieved by sleighs early on Tuesday morning. Why did they not go back? The road they had come over was certainly open and the engine could have pushed them back if it could not have been turned so as to drag them. There was certainly want of proper care and foresight in this matter, on the part of the Company's servants.

Airy enterprize in the West.—A Mr. Kirby, who had perviously made two unsuccessful attempts to "clear out for the clouds," in a balloon from Cincinnati, succeeded in his third trial on the 15th inst. and actually ascended to a great height—coming down afterwards in perfect safety, and without at all injuring his balloon.

INTERCOURSE BETWEEN THE CITIES OF NEW YORK AND BROOKLYN.—It is estimated that as many as ten thousand persons, with several hundreds of carriages, from coaches to hand-carts, pass daily at the Fulton Ferry. The ferriage for a single person is 4 cents—amounting daily for 10,000 persons to $400. Supposing 400 vehicles of all sorts and horses to pass daily at an average price of 25 cents each, the receipt further would be $100, making $500 perdiem, or for the 365 days, composing the year, the enormous sum in gross of $182,500. The capital which produces this enormous return, consists we believe, of four steamboats, costing at the outside, we apprehend $10,000 a piece, and the docks, bridges &c. valued at $10,000, making $50,000, produce $182,500 subject to deduction for fuel, collectors, crew of the boats, repairs &c.

This is the fruit of monopoly,—and it is such a monopoly as this, that some of the uptown intereft of this city wishes to perpetuate, by refusing to Long Island a new South ferry.

INDIAN ANTIQUITIES.—On Saturday last, says the Pawtucket Chronicle, the bones of an Indian, and seven guns, four brass kettles and seven bottles of spirits, were dug out of a bank to the southward of the Meeting House, near the stone bridge, in Tiverton, State of Rhode Island.

A Horse at a Supper Table.—Last evening, just after dark, a horse and sleigh came full speed down Pearl-street, and on arriving at Fulton-street, the horse sheered a little to the left, and entered the Refectory under Holt's building, leaving the sleigh behind. The animal received no injury; and, after paying his respects to those who were at table, he was unceremoniously "put out," being considered an uninvited guest.

True Friendship.—"The water that flows from a spring does not congeal in winter; and those sentiments of friendship which flow from the heart, cannot be frozen by adversity."

Great Minds.—"One of the surest marks of a great mind is the confidence with which it knows how to inspire others. The frailties of great men form the comfort and delight of fools."

Steamboat Lost.—On the 11th inst., the steamboat Champlain left St. Louis for Cincinnati. About half past 11 o'clock at night, two miles below St. Genevieve, she ran foul of a large snag, and sank, so that in a few minutes there were three feet water in her upper cabin. It is supposed that three or four of the passengers were drowned.

Landing of the Pilgrims.—The anniversary of this ever to be remembered day, was celebrated at Plymouth, on Monday. The weather was fair and a large number of the respectable inhabitants of the adjacent towns were present. Among the guests, was His Honor, Lieut. Governor Armstrong. The address was delivered by the Rev. Mr. Blagden of this city, and was an effort worthy of the high reputation of the speaker and of the occasion. A melancholy accident happened in the course of the afternoon which excited the deepest sympathy for the venerable sufferer. Dr. Thatcher, well known as the author of the Revolutionary Journal, was thrown down and run over by a vehicle, and injured very severely. Being very deaf, he was not aware of the danger until it was too late to avoid it. The extent of the injury could not be ascertained at once, but from the advanced age of the Doctor, now eighty-two, the most serious apprehensions were entertained of the consequences.—[Boston Atlas.]

Senatorial Munificence.—The legislature of Indiana, at its last session, by joint resolution, required the governor to ascertain on what terms the hon. *John Tipton* would surrender to the state the *Tippecanoe* battle ground. The governor applied accordingly, and reported to the legislature, that Mr. Tipton proffers to "*transfer it without charge.*"

Anecdote.—An innkeeper in England, requested of Lord Wellington, to permit him to place his portrait over the door of his house, which was hitherto known as the sign of the *ass;* his lordship having consented, the new sign was hung up in due form, but a knowing one in the same line of business hoisted the old sign over his door; and the sign of the ass being a well known stopping place, travellers poured in at the new establishment, to the great regret and mortification of the Wellington host, who to prevent utter desertion, wrote under the portrait of the noble Duke, "*This is the real Ass.*"

A curious fact relative to the procuring of otter furs is related in an Ohio paper. Improving the hint suggested by the fact of the superiority of "live" feathers over those plucked from the dead fowl, we are told that a Mr. Entz, of Cambridge, in that State, has succeeded in the experiment of domesticating the wild otter, and rendering it a source of profit by the fur picked from its body. It is added that the tame otters yield two crops a year, and that the quality of the fur is superior in fineness and gloss to that taken from the skin of the dead animal. Mr. E. is going extensively into the business of taming otters, muskrats, &c. for their live fur. His estimate of the annual profit of an otter, at the present prices of furs, is about fourteen dollars.

An Earthquake.—The Georgetown, Ohio, Castigator of the 24th ultimo, says—A severe shock of an earthquake was felt at this place by a number of our citizens, at about half past one o'clock, P. M. on last Thursday. The first appearance was that of a loud

rumbling noise, succeeded by a tremendous shaking. The same was felt at Maysville, Ky., at about the same hour of the day.

Another Shipwreck on Lake Ontario.—A correspondent at Pultneyville, of the Wayne Sentinel, gives the following particulars relative to the wreck of the schooner General Brock: "The British schooner General Brock, Capt. Campbell, from Prescott, U. C., bound to Toronto, seventy tons burthen, laden with merchandise, was run ashore about two miles west of Pultneyville, during a severe gale on Sunday, the 14th inst., at about 3 o'clock P. M., but was not discovered until 4, when the people of the village were notified and went to their relief, and in the evening all on board, seventeen in number, including one female, were got on shore—but not without much hazard and some frozen limbs. They were all taken to the house of William Waters, where they received every attention necessary. The greater part of the deck load was hove overboard before she struck.—They were on the lake about 15 hours after the storm had become extremely severe, the wind blowing from the northward, accompanied with snow.—The cold was intense. Considerable of the remaining cargo was got on shore, which is not much damaged, but much yet on board will be entirely lost, it being on board. The loss, at best, will be very great, though it is said the goods are insured. Much credit is due to those who aided in relieving the sufferers from their distressed condition."—[Oswego Patriot.]

The pride of woman has an hypocrisy which can deceive the most penetrating, and shame the most astute.

When we experience neither candor nor justice in mankind, it almost drives us in despair to suppress every generous emotion, and to exist in a state of carelessness, hardness, forgetfulness, and self-indulgence.

Fraternal Generosity.—The late Mr. Grawshay, in the testamentary disposal of his property, bequeathed the bulk of his immense fortune to three sons and one of his daughters, almost entirely overlooking his other daughter, Mrs. Frederick Wood.—The three brothers and the sister of that lady, with a fraternal affection which does them the highest honor, have within the last week, each presented her with 5,000*l*; which, with the sum of 20,000*l*. originally presented to her by her father, makes her fortune equal to 40,000*l*.

THE WIFE OF LAFAYETTE.—The following is taken from that portion of Mr. Everett's beautiful tribute to the memory of this friend of America, and champion of liberal principles, which relates to the attempt of his wife to effect his liberation from the dungeons of Olmutz:

Relieved from anxiety on account of her son, the wife of Lafayette was resolved, with her daughters, to share his captivity. Just escaped from the dungeons of Robespierre, she hastened to plunge into those of the German Emperor. This admirable lady who, in the morning of life had sent her youthful hero from her side to fight the battle of constitutional freedom beneath the guidance of Washington, now goes to immure herself within the gloomy cells of Olmutz. Born, brought up, accustomed to all that was refined, luxurious and elegant, she goes to shut herself up in the poisonous wards of his dungeon—to partake his wretched fare; to share his daily repeated insults; to breathe an atmosphere so noxious and intolerable, that the gaolers, who bring them their daily food, are compelled to cover their faces as they enter their cells.

Landing at Altona on the 9th of September, 1795, she proceeded with an American passport, under the family name of her husband (Motier,) to Vienna. Having arrived in that city, she obtained, through the compassionate offices of Count Rosenberg, an interview with the Emperor. Francis II, is not a cruel man. At the the age of twenty-five he has not yet been hardened by long training in the school of state policy. He is a husband and a father. The heroic wife of Lafayette, with her daughters, is admitted to his presence. She demands only to share her husband's prison, but she emplores the Emperor to restore to liberty, the father of her children.—"He was indeed, Sire, an officer in the armies of republican America; but it was at a time when the daughter of Maria Therese was foremost in his praise. He was indeed a leader of the French revolution; but not in its excesses, not in its crimes: and it was owing to him alone, that on the dreadful 5th of October, Marie Antoinette and her son had not been torn to pieces by the blood thirsty populace of Paris. He is not the prisoner of your justice, nor your arms; but was thrown by misfortune into your power, when he fled before the same monster of blood and crime, who brought the king and queen to the scaffold. Three of my family have perished on the same scaffold, my aged grand-parent, my mother, and my sister. Will the Emperor of Germany close the dark catalogue, and doom my husband to a dungeon worse than death?—Restore him, Sire, not to his army, to his power, to his influence, but to his shattered health, his ruined fortunes,—to the affection of his fellow citizens in America, where he is content to close his career,—to his wife and children."

The emperor is a humane man. He hears, considers, reasons, hesitates;—tells her his hands are tied by reasons of state, and permits her to shut herself up, with her daughters, in the cells of Olmutz! There her health soon fails; she asks to be permitted to pass a month at Vienna to recruit it, and is answered that she may leave the prison whenever she pleases; but if she leaves it, is never again to return. On this condition, she rejects the indulgence with disdain, and prepares herself to sink, under the slow poison of an affected atmosphere, by her husband's side. But her brave heart—fit partner for a hero's—bore her through the trial;—though the hand of death was upon her. She prolonged a feeble existence of ten years, after their release from captivity but never recovered the effects of this merciless imprisonment.

[*From Dr. Lieber's Letters from America to a Gentleman in Germaay.*]

I always have considered Mahomed very impolitic for denying women a soul, and the Andalusians ought to be ashamed to this day, that their forefathers, the gentlemen of Gades, according to Strabo, prohibited women from entering their temple of Hercules. But I really wish ladies would keep out of the way where they are not in their sphere. I would say, "Don't show this passage to the ladies of your family," did they not know already my opinion on this point, and, moreover, that it originates from my great veneration of the sex.

A poor fellow of a traveller wants, for instance, to hear the great men of the nation "talk." He goes to Washington; by eleven o'clock, the morning after his arrival, he proceeds to the Senate, though its business only begins by twelve o'clock. He thinks he has secured a seat. But by that time ladies begin to drop in; presently they seize upon all the seats. Very well, allow the poor fellow but a fair *stand*, but no, he is obliged to squeeze himself in a corner, pressed in from all sides; mercy ye gentle souls, allow him but a free passage from his ear to the debaters, and treat the rest of his body as though it were a bale of cotton under the hydraulic press! The prayer is said; he stretches his neck like a turtle, and turns his eyes away, in order to bring his ear the better into a position that it may catch a sound, which Echo, more merciful than the ladies, may throw into it. His twisted neck begins to ache; his eyes are closed, he thinks "now for the treat," when, unhappily, some officer of the Senate taps him on the shoulder: "Sir, there are ladies coming," at the same time, shuffling and pushing chairs over the heads of innocent listeners and constituents, crammed in like the camomile flowers of the Shaking Quakers; but they have nothing to do here, it seems. At last, the officer succeeds in working a passage, and lo! as if a canal of bonnets, feathers, and veils, had broken through, in they rush; there is no use in resistance "when this element breaks through."—Without a single "I beg your pardon," or betraying the least sorrow at disturbing you, the ladies drive the poor man out of his last retreat; "out with you, badger, out with you!" he must needs give way, the contrary would be rude; and—*manes blancas no ofenden*. The poor man who has come, say five hundred miles, to hear the Senate, is standing, by this time near the door, with a longing look toward the President, if he has found an opportunity to turn his head back again; and now the debates begin, but, alas! the ladies, also, begin, and our unlucky traveller retires, all he has heard of the Senate having been a lisping from sweet lips, directed, perchance, to a polite Senator himself. I truly and sincerely think, that legislative halls are, generally speaking, not places precisely calculated for ladies, for many and, I humbly think, very weighty reasons.

Taken all in all, it seems to me, that woman, in the best times of the Roman republic, had a position in society as near to what she ought to have, as at any other period of the world, and with any nation. Thus much is certain, that the history of no people has recorded so many adorable examples of female virtue and elevation of soul, as the history of "better Rome." But Lucretia, Valeria, Veturia, Volumnia, Cornelia, Portia, and the late and noble Aria, never went to the Senate-house. I know full well that our society, resting on different principles from that of ancient Rome—witness our refinement, our industry, our generally diffused system of education, our social intercourse, which has grown out of a natural transformation of that of the chivalric times, of which, nevertheless, many elements have passed over as integrant parts of the new order of things,—has different demands, and requires different positions in the members composing it; yet much is ever to be learned, from whatever once was great.

Why not have, in the good old style of the early church, a box with lattice work, of some seats for a few matrons; but as to giving up the whole place, left for humble listeners, to young ladies of sixteen, and seventeen, who turn the senate house into a lounging place; it is, permit me to say it with a bow, which craves indulgence, unfair. Now, if a law were passed that no lady under twenty five years should be admitted, I bet my life the whole difficulty would be removed. The English, as yet the great masters of what I would call parliamentary management, in which we are the next best, but the French, to no little injury of their whole scheme of liberty, are totally deficient, do not admit ladies, except on some particular occasions, in the gallery of the house of lords.

Suppose, the same disappointed man, whom we have seen swimming, without success, against the current in the senate-house, is desirous of hearing an oration on some political subject, to be delivered in a public hall or church. He starts early, to be certain of a place, but, oh Jove, protector of the strangers! when he arrives, all seats, below and in the first rank above, are already taken by the ladies, whose pretty heads are in as quick motion as their fans, which gives to the whole scene the appearance of an agitated sea between breakers. But the stranger espies a yet empty space; to this he directs his course; it is difficult, and may cost him a flap of his coat, but never mind, he is anxous to hear the orator of the day. He penetrates at length, to the spot where he expects to rest in peace. "Sir," says, very politely, a man with a short stick in his hand, "these seats are reserved for the gentlemen who form the possession.' Confound it, internally exclaims the disappointed man, and makes his exit.—I remember, I was once unable, on occasion of the delivery of a Latin oration at a public commencement of some college, to penetrate a crowd of ladies, composed, almost without exception, not of mothers, but of young fashionables. I am resolved to do my best to get up a *Polite anti-ladies-thronging-poor-men-out-of-every-chance-of-seeing-any-thing-Society*, and have branches established all over our Union. If I am made president, I'll certainly use my influence to get Mr. Stuart elected an honorary and corresponding member.

THE NAVIES OF FRANCE AND ENGLAND.—We gave the other day, from an official French journal of last year, an account of the French Navy. We now translate from the same periodical for January of this year, a comparative statement of the English and French Navy, as to the number of ships and officers:—

Comparison between the Navy of France and England.—According to official documents, the officers of the English Navy are, 44 Admirals, 62 Vice Admirals, 64 Rear Admirals, 43 Rear Admirals on half pay, 786 Captains, 877 Commanders, 279 Lieutenant Commanders, 3172 Lieutenants, 487 Masters, 625 Quarter Masters, 1088 Medical Officers, 63 Chaplains.

There are 22 ships of 100 guns and over, 99 seventy-four gun ships and over, 104 frigates of and above 42 guns, 22 steam vessels, and 310 ships ranging from 40 to 36 guns—in all 557 vessels.

The officers of the French Navy are, 3 Admirals, 12 Vice Admirals, 22 Rear Admirals, 70 Captains of line of battle ships, 70 Captains of frigates, 90 Captains of corvettes, 450 Lieutenants of line of battle ships, 550 do of frigates, 315 Medical Officers, 12,500 Masters, Seamen, and boys.

There are 40 line of battle ships of from 74 to 80 guns, 52 frigates of 1st, 2d, and 3d rate, 25 corvettes, 17 steam ships, 300 brigs, schooners, gun boats, &c.

England, with three times as many ships and officers as we, spends only 125 millions of francs annually, [25 millions dollars] on its Navy. Ours costs 70 millions francs, [14 millions dollars.]

PAY TO NAVY OFFICERS.—The House of Representatives has been for some time engaged on, and has finally adopted in committee, a bill for raising, as is most just and proper, the pay of the Navy.

The Journal of Commerce gives the following as the exact provisions of the bill, *as reported to the House by the Committee of the Whole.* It is to go into operation from the date of its passage:

The Senior Captain.—The bill provides that the Senior Captain shall receive, at all times when in service, $4500. When on leave of absence or waiting orders, $3500.

All other Captains—When commanding squadrons or coast stations, and when acting as Navy Commissioners, $4500. When commanding Navy Yards $4000. When on other duty, $3750. When on leave of absence or waiting orders, $3000.

Masters Commandant.—On sea service, $2500; on other duty, $2000; waiting orders, $1800.

Lieutenants.—Commanding, $1800; on other duty, $1500; waiting orders, $1200.

Assistant Surgeons.—Waiting orders, $650; at sea, $950. After passing, and found qualified for promotion to Surgeon, $850; at sea, $1200; stationed at Navy yards, hospitals, rendezvous, and receiving ships, $950. After being passed, and stationed as above, $1250.

Surgeons.—First five years after date of commission, $1000; second do, $1200; third do, $1400; fourth do, $1600; afterwards, $1800. An increase of one-fourth on those rates, when under orders for duty, at Navy yards, receiving vessels, rendezvous, or naval hospitals; an increase of one-third when ordered to any vessel for sea service; an increase of one-half, when ordered as fleet surgeons; and three-fourths, when appointed to perform the duties of Surgeon General. When attached to vessels for service, or at Navy yards, $1400; when on leave of absence or waiting orders, $900.

Chaplains.—When attached to vessels for sea service or at navy yards, $1200. On leave of absence or waiting orders, $800.

Professor of Mathematics.—When attached to vessels for sea service, or in a yard, $1200.

Secretaries.—To commanders of squadrons when commanding in chief, $1000, do. when not commanding in chief, $900.

Sailing Masters.—Of a ship of the line for sea service, $1100; on other duty, $1000; on leave of absence, or waiting orders, $750.

Second Masters.—Attached to vessels for sea service, $750; on other duty, $500; on leave of absence or waiting orders, $400.

Passed Midshipmen.—Attached to vessels for sea service, 600; on other duty, $500; on leave of absence, or waiting orders, $400.

Warranted Masters' Mates.—Attached to vessels for sea service, or at navy yards, $450; on leave of absence, or waiting orders, $300.

Midshipmen.—Attached to vessels for sea service, $400; on other duty, $350; on leave of absence, or waiting orders, $300.

Clerks.—Of a yard, $900; first Clerk to a Commandant of a Navy Yard, $900; second do., $750; clerk to commanders of squadrons, captains of fleets, and commanders of vessels, $500.

Boatswains, Gunners, Sailmakers, Carpenters.—Of a ship of the line for sea service, $750; of a frigate for do. $600; when on other duty, $500; when on leave of absence, or waiting orders, $360.

General Provisions.

Officers temporarily performing duties delonging to those of a higher grade, shall receive the compensation allowed to such grade, while actually so employed.

No officer shall be put on furlough except at his own request: and all officers so on furlough, shall receive two thirds of the pay allotted to leave of absence.

An Assistant Surgeon, having been absent on duty when others of his date were examined, shall, if not rejected at a subsequent examination, be entitled to the same rank with them; and if from any cause his relative rank cannot be assigned to him, he will retain his original position on the register.

Only one ration per day allowed to any officer when attached to vessels for sea service.

The compensation above specified, shall be in full for pay and subsistence, and for all allowances in lieu of cabin furniture to commanders of vessels and squadrons, and for all allowances to officers attached to Navy Yards, or employed on any shore duty, except for detention and employment on special service, for house rent or chamber money where quarters or public accommodations are not provided, and for travel under orders, for which 16 cents per mile shall be allowed.

From the pay of commission and warrant officers, hereafter to become due, the Secretary of the Treasury is directed to deduct 3 per cent. and to pay the same to the Secretary of the Navy and the Navy Commissioners, as a fund, in connexion with other monies, for the relief of the widows, children, widowed mothers and unmarried sisters of said commission and warrant officers.

The distribution of prize money to the officers, seamen, and marines of the Navy, shall hereafter be in proportion to the pay of such officers, seamen and marines, respectively.

THE CAUSE OF TEMPERANCE is the cause of all; for the curse of Inemperance falls with its withering blight, in some way, more or less, upon all. It is, therefore, with unfeigned satisfaction, we give place to the following notice, handed to us for publication, by the President of the New York State Temperance Society. Of the meritorious character of this gentleman, of his untiring zeal and virtuous enthusiasm in the great cause to which he has dedicated himself, this is not the place to speak at large; but we could not insert the notice of such a result, as is announced below, without some allusion to the individual through whose instrumentality it was effected:—

The following gentlemen have agreed to contribute the sums set opposite to their respective names, towards the support of the Press, the efficient agent under Divine Providence, in the great cause of Temperance. The Executive Committee take this mode of tendering their heartfelt thanks to the gentlemen who have thus so generously and so liberally come forward in aid of this noble cause:—

Stephen Van Rensselaer, Albany,		$1,000
Henry Dwight, Geneva,		1,000
A. Champion, Rochester,		1,000
E. Corning, Albany,		1,000
Samuel Ward, New York,		1,000
Brown, Brothers & Co.,	do.,	1,000
Peter Remsen,	do.,	1,000
Boorman & Johnston,	do.,	1,000
John Jacob Astor,	do.,	1,000
P. G. Stuyvesant,	do.,	1,000
J. W. Leavitt,	do.,	1,000
Charles Hoyt, Brooklyn,		1,000
Anson Blake, New York,		1,000
A Friend,		1,000
E. C. Delavan, Albany,		1,000
		$15,000

The leading object, as we understand, of this munificent subscription, is to enable the friends of Temperance to disseminate more and more widely through the land their admirable exhortations and rebukes.

COLUMBIA COLLEGE, S. C.—Governor *McDuffie*, in his Message to the Legislature, thus refers to this College, of which it will be remembered the noted *Dr. Cooper* was the President, and the affairs of which had been closely investigated by the Board of Trustees:

"This investigation has resulted in a most thorough conviction, founded upon information derived from authentic sources in every quarter of the State, that the Faculty of the College have become so generally obnoxious to our fellow-citizens, on the score of the supposed religious heresies of some of them, and of the relaxation of moral and general discipline, and have so irrevocably lost the public confidence as suitable persons to guard the morals and mould the opinions of the rising generation, as to render a radical reform and thorough re-organization of the institution, a measure of indispensable necessity, and the only practicable means of reviving its prosperity and extending its usefulness."

As the first step, they have invited all the members of the Faculty to resign—and these have promptly complied with their request. They have proceeded to fill the vacancies, and appointed the four following Professors:—1st. "Mr. Dew, now a Professor in the College of William and Mary, in Virginia, has been elected Professor of Political Economy and History." 2d. "Mr. Cogswell, of Massachusetts, who has been for many years known to some of the members of the Board, as the head of an eminently successful institution in that State, has been elected Professor of Greek and Roman Literature." 3d. "Mr. Davies, now and for many years past, acting as the Professor of Mathematics in the Westpoint Academy, has been elected Professor of Mathematics, Mechanical Philosophy and Astronomy." 4th. "Professor Nott, whose scholarship and devotion to the College, are well know to us all, has been re-elected Professor of Logic and Belles Lettres."—The Governor asks for $20,000 to repair the buildings, &c.

[*From the Salem Gazette of Friday.*]

We observe, in a perusal of the debates in the French Chamber of Deputies, that it appeared to be agreed on all sides, that as under our embargo law no American vessel could lawfully navigate the ocean all those who were found on it were trading on British account, and were lawful prize under the French decrees. Some of the American editors, we perceive, fall into the same error. The fact, however, was otherwise. At the time the embargo was laid, a great number of our vessels were at sea engaged in their usual commerce; many of them on distant voyages. Their absence, especially as no previous notice could be given to them, was strictly justifiable under the law; and as no obligation was imposed on them by the law to return, they committed no offence by remaining abroad. Other vessels inconsiderable in number, left the United States, in violation of the law. The latter committed an offence against their country, but none against foreign powers. They were not disfranchised by the act. They were entitled to the protection of their government, and it had a right to inflict on them the penalty to which their conduct had exposed them. The government of France could withdraw them from neither of these claims.

Rather Cool.—The thermometer at Eastport on Mondoy morning last, stood at 13 degrees below zero, and at Calais, at 18 below.

Duke of Newcastle.—A poor fellow having with difficulty procured an audience of the late Duke of Newcastle, told his grace he came to solicit from him something by way of support, and as they were of the same family, being both descendants from Adam, he hoped he should not be refused. Surely not, said the Duke, there is a penny for you, and if all the rest of your relations give you as much, you'll be a richer man than I am.

Irish Biography.—An Irish writer thus concludes a biography:—"This extraordinary man has left no children behind him, except his *brother who was killed at the same time.*"

[*From the New Monthly Magazine for November.*]

THE FALLEN LEAVES.—BY THE HON. MRS. NORTON.

We stand among the fallen leaves,
Young children at our play—
And laugh to see the yellow things
Go rustling on their way;
Right merrily we hunt them down,
The autumn winds and we;
Nor pause to gaze where snow-drifts lie,
Or sunbeams gild the tree.
With dancing feet we leap along
Where wither'd boughs are strown:
Nor past nor future checks our song—
The present is our own.

We stand among the fallen leaves
In youth's enchanted spring—
When Hope (who wearies at the last)
First spreads her eagle wing.
We tread with steps of conscious strength
Beneath the leafless trees,
And the color kindles in our cheek
As blows the winter breeze;
While, gazing towards the cold grey sky,
Clouded with snow and rain,
We wish the old year all past by,
And the young spring come again.

We stand among the fallen leaves
In manhood's haughty prime—
When first our pausing hearts begin
'To love the olden time;'
And, as we gaze, we sigh to think
How many a year hath pass'd
Since 'neath those cold and faded trees
Our footsteps wander'd last;
And old companions—now perchance
Estranged, forgot, or dead—
Come round us, as those autumn leaves
Are crush'd beneath our tread.

We stand among the fallen leaves
In our *own* autumn day—
And, toil'ring on with feeble steps,
Pursue our cheerless way
We look not back—too long ago
Hath all we loved been lost;
Nor forward—for we may not live
To see our new hope cross'd;
But on we go—the sun's faint beam
A feeble warmth imparts—
Childhood without its joy returns—
The present fills our hearts!

MECHANICS' MAGAZINE.

THE NOVEMBER NUMBER is now ready. It contains Judge Baldwin's Address before the American Institute, verbatim, correcte i by himself; a supplemental account of articles exhibited at the Fare, and a great variety of interesting scientific intelligence, both American and European.

The Mechanics' Magazine and Register of Inventions and Improvements is published by the Proprietors, D. K. Minor & J. E. Challis, at No. 35 Wall-street, New York: in *weekly* sheets of 16 pages, at 6¼ cents—in monthly parts of 64 pages, at 31¼ cents—in volumes of 384 pages, in cloth boards, at $1.75—or at $3 per annum, in advance.—Jamie Knight, (formerly proprietor of the London Mechanics' Magazine,) Editor.

The following encomiums on the Mechanics' Magazine and Register of Inventions and Improvements, are selected, from many others, from newspapers published in every section of the Union:

No respectable mechanic who feels the least interest in the manifold improvements of the age, should be without this, or some similar publication.—*Susquehannah Register.*

It ought to find its way into the house of every artizan, and no mechanic who desires to keep pace with the various improvements of the day, will be without it.—*Geneva Whig.*

There is no periodical in this country which more deserves the patronage of the mechanic than this, and which will better repay him for the expense incurred and the time spent in its perusal.—*Elmyra Gazette.*

It contains information on almost every subject connected with mechanics, and a register of inventions and improvements.—*Montreal Gazette.*

MILL DAM FOUNDRY FOR SALE,

☞ The Proprietors of the Mill Dam Foundry offer for sale or lease, their well known establishment, situated one mile from Boston. The improvements consist of

No. 1. *Boiler House*, 50 feet by 30 feet, containing all the necessary machinery for making boilers for *Locomotive* and other steam Engines.

No. 2. *Blacksmith's Shop*, 50 feet by 20, fitted with cranes for heavy work.

No. 3. *Locomotive House*, 54 feet by 25, used for putting together Locomotive Engines. Several of the best Engines in use in the United States have been put in this establishment.

No. 4. A three story brick building, covered with slate, 120 feet by 46, containing two water-wheels, equal to 40 horse power; Machine Shop, filled with lathes, &c.; Pattern Shop; Rolling Mill and Furnaces, capable of rolling 4 tons of iron per diem, exclusive of other work; three Trip Hammers, one of which is very large; Engine for blowing Cupola Furnaces, moved by water-wheel; one very superior 24 horse Steam Engine, which could be dispensed with; and a variety of other machinery.

No. 5. An Iron Foundry, 80 feet by 45, with a superior air Furnace and two Cupolas, Core oven, Cranes, &c. fitted for the largest work. Attached to the Foundry is a large warehouse, containing Patterns for the Castings of Hydraulic Presses, Locomotive and other Steam Engines, Lead Mill Rolls, Geering, Shafts, Stoves, Grates, &c. &c. These were made of the most durable materials, under the direction of a very scientific and practical Engineer, and are supposed to be of great value.

No. 6. A building, 65 feet by 36, containing a large stack of chimneys, and furnaces, for making Cast Steel. This building is at present used as a boarding-house, and can accommodate a large number of men.

No. 7. A range of buildings, 200 feet long by 36, containing counting room, several store rooms, a Brass Foundry, room for cleaning castings, a large loft for storing patterns, stable for two horses, &c. &c.

The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and Iron can be carried from vessels in the harbors of Boston, to the wharf in front of the Factory, at 25 to 30 cents per ton. Some of the largest jobs of Iron work have been completed at this establishment; among others, the great chain and lift pumps for freeing the Dry Dock at the Navy Yard Charleston.

The situation for Railroad work is excellent, being in the angle formed by the crossing of the Providence and Worcester Railroads. The Locomotive "Yankee," now running on the latter road, and the "Jonathan," purchased by the State of Pennsylvania, were built at these works. With the Patterns and Machinery now in the premises, 12 Locomotives and as many tenders, besides a great quantity of cars and waggons, could be made per annum.

For terms, apply to

THOS. J. ECKLEY, Treas', &c., Boston, or to
ROBERT RALSTON, Jr., Philadelphia.

Boston, Dec. 20, 1834.

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

☞ Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use.

Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept 13 1y

☞ TOWNSEND & DURFEE, of Palmyra, *Manufacturers of Railroad Rope*, having removed their establishment to Hudson, under the name of *Durfee, May & Co.* offer to supply Rope of any required length (without splice) for inclined planes of Railroads at the shortest notice, and deliver them in any of the principal cities in the United States. As to the quality of Rope, the public are referred to J. B. Jervis, Eng. M. & H. R. R. Co., Albany; or James Archibald, Engineer Hudson and Delaware Canal and Railroad Company, Carbondale, Luzerne county, Pennsylvania.

Hudson, Columbia county, New-York, }
January 29, 1833. }

SURVEYORS' INSTRUMENTS.

☞ Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by E. & G. W. BLUNT, 154 Water street, corner of Maidenlane.

J31 6t

RAILROAD AND CANAL MAP.

THIS long promised Map is now ready for those who wish it. Its size is 94 by 40 inches. It is put up in a convenient pocket form, in morocco covers, and accompanied by over 70 pages of letter press, giving a concise description of, or reference to, each Road and Canal delineated on the Map. It will also be put up in *Marble Paper* covers, so as to be forwarded by mail to any part of the country; the postage of which, cannot exceed 44, and probably not 25 cents, to any part of the county.

Published at 35 Wall street, N. Y, by
a12 tf D. K. MINOR & J. E. CHALLIS.

AGENTS FOR NEW PUBLICATIONS.

HENRY G. WOODHULL, of Wheatland, Monroe county, New York, is agent for the following Publications:

The New York American Daily, at $10.00—Tri-Weekly, at $5.00—Semi-Weekly, at $4.00 in advance.

The American Railroad Journal, Weekly, at $3.00 per annum

The Mechanics' Magazine, two volumes a year, at $3.00 per annum.

The Quarterly Journal of Agriculture and Mechanics, at $5.00 per annum, or $1.25 per number.

The Family Magazine, 416 pages a year, at $1 50 in advance.

The Monthly Repository and Library of Entertaining Knowledge, of 36 pages a month, at $1.00 in advance, now in the 5th volume, bound volumes $1.25

The Ladies' Companion, of 54 pages a month, at $3.00 per annum, in advance.

The Rochester Gem, at $1.50 in advance.

All Communications addressed to me, at Wheatland, Monroe county, will be promptly attended to. September 19, 1834.

ALBANY SEED STORE AND HORTICULTURAL REPOSITORY.

The subscriber having resumed the charge of the above establishment, is now enabled to furnish traders and others with FRESH GARDEN SEEDS, upon very favorable terms, and of the growth of 1833, *warranted* of the best quality.

The greatest care and attention has been bestowed upon the growing and saving of Seeds, and none will be sold at this establishment excepting those raised expressly for it, and by experienced seedsmen; and those kinds imported which cannot be raised to perfection in this country; these are from the best houses in Europe, and may be relied upon as genuine.

It is earnestly requested whenever there are any failures here after, they should be represented to the subscriber; not that it is possible to obviate unfavorable seasons and circumstances, but that satisfaction may be rendered and perfection approximated.

Also—French Lucern, White Dutch Clover, White Mulberry Seed, genuine Mangel Wurtzel, Yellow Locust, Ruta Baga, and Field Turnip Seeds, well worth the attention of *Farmers*.

W. THORBURN,
347 N. Market st. (opposite Post Office.

☞ Catalogues may be had at the Store; if sent for by mail will be forwarded gratis. Orders solicited early, as the better justice can be done in the execution.

*** Mr. Thorburn is also Agent for the following publications to wit:—New York Farmer and American Gardener's Magazine; Mechanics' Magazine and Register of Inventions and Improvements; American Railroad Journal and Advocate of Internal Improvements; and the New-York American, *Daily, Tri-Weekly*, and *Semi-Weekly*: *either* or *all* of which may be seen and obtained by those who wish them, by calling at 347 *North Market street, Albany.* tf

TO RAILROAD COMPANIES.

☞ The subscriber having erected extensive machinery for the manufacture of the Iron Work for Railroad Cars, and having made arrangements with Mr. Phineas Davis, patentee of the celebrated wire chilled wheels, will enable him to fit up at short notice any number of cars which may be wanted.

The superiority of the above Wheels has been fully tested on the Baltimore and Ohio Railroad, where they have been in constant use for some months past. Having fitted up Wheels for six hundred Cars, the subscriber flatters himself that he can execute orders in the above line to the satisfaction of persons requiring such work. The location of the shop being on the tide-waters of the Chesapeake Bay, will enable him to ship the work to any of the Atlantic ports, on as reasonable terms as can be offered by any person. All orders will be executed with despatch, and the work warranted. When there are but a few setts wanted, the chills and patterns are to be furnished, or the company pay the expense of making the same, and if required, will be sent with the wheels All Wheels furnished and fitted by the subscriber will have no extra charge on account of the patent right.

Samples of the above Wheels, which have been broken to show their superiority, may be seen at the office of the Railroad Journal; at the Depot of the Boston and Providence Railroad, Boston; and at John Arnold's shop, near the Broad street House, Philadelphia. All orders directed to J. W. & E. PATTERSON, Baltimore, or to the subscriber, Joppa Mills, Little Gunpowder Post-Office, Baltimore county, Maryland, will be attended to. DEAN WALKER. a3

PATENT RAILROAD, SHIP AND BOAT SPIKES.

☞ The Troy Iron and Nail Factory keep constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

☞ All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.

Troy N. Y. July, 1831.

☞ Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 222 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practical, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

J23 1am H. BURDEN.

LOCOMOTIVE ENGINES.

☞ THE AMERICAN STEAM CARRIAGE COMPANY, OF PHILADELPHIA, respectfully inform the public, and especially Railroad and Transportation Companies, that they have become sole proprietors of certain improvements in the construction of Locomotive Engines, and other railway carriages, secured to Col. Stephen H. Long, of the United States Engineers, by letters patent from the United States, and that they are prepared to execute any orders for the construction of Locomotive Engines, Tenders, &c. with which they may be favored, and pledge themselves to a punctual compliance with any engagements they may make in reference to this line of business.

They have already in their possession the requisite apparatus for the construction of three classes of engines, viz. engines weighing four, five, and six tons.

The engines made by them will be warranted to travel at the following rates of speed, viz. a six ton engine at a speed of 15 miles per hour; a five ton engine at a speed of 18 miles per hour; a four ton engine at a speed of 23 1-2 miles per hour. Their performance in other respects will be warranted to equal that of the best English engines of the same class, with respect not only to their efficiency in the conveyance of burthens, but to their durability, and the cheapness and facility of their repairs

The engines will be adapted to the use of anthracite coal, pine-wood, coke, or any other fuel hitherto used in locomotive engines.

The terms shall be quite as favorable, and even more moderate, than those on which engines of the same class can be procured from abroad.

All orders for engines, &c. and other communications in reference to the subject, will be addressed to the subscriber, in the city of Philadelphia, and shall receive prompt attention.

By order of the Company,
WILLIAM NORRIS, Secretary.

December 2d, 1833.

For further information on this subject see No. 49, page 772, Vol. 2, of Railroad Journal.

RAILWAY IRON.

☞ Ninety-five tons of 1 inch by ¾ inch,		*Flat Bars* in lengths of 14 to 18 feet counter sunk holes, ends cut at an angle of 45 degrees with splicing plates, nails to suit.
360	do. 1½ do.	do.
40	do. 1¼ do.	do.
800	do. 2 do.	do.
800	do. 2½ do.	do.
soon expected.		

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels

Axles of 2¼, 2⅜, 2½, 3, 3⅛, 3¼, and 3½ inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON.

9 South Front street, Philadelphia.

Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use, both in this country and Great Britain, will be exhibited to those disposed to examine them. d7imeowr

SURVEYING AND ENGINEERING INSTRUMENTS.

☞ The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new: among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also, a Railroad Goniometer, with two Telescopes—and a Levelling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes. WM. J. YOUNG,

Mathematical Instrument Maker, No. 9 Dock street, Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.

Baltimore, 1839.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee with the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, (to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,
JAMES P. STABLER, Superintendant of Construction of Baltimore and Ohio Railroad.

Philadelphia, February, 1838.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors. E. H. GILL, Civil Engineer.

Germantown, February, 1838.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad. Germant. and Norrist. Railroad.

m1 1y

ERRATUM.—The following lines should have been inserted at the commeacement of the third page of this number, (page 819,) but were accidentally omitted.—[PRINTER.]

AX, BX', *converging* in advance. It is evident that the same signs will appertain to both of the figures 3 and 4; that is, $\propto = +3$, $B = -2$, and $z = -10°$. And therefore in this case,

$$\text{Sin. } T' = \frac{12-2\cdot\text{Cos. } 10° + 17+3\cdot\text{Sin. } 10°}{12-2|^2 + 17+3|^2} =$$

Extract of a letter from a friend:

"I will just say for your own gratification that the surveys of the Rochester and Olean Canal are completed. Great care has been taken to make them as perfect as possible, and the report, which will appear early, will be favorable."

We learn from the Springfield Pioneer that the Mad river railroad is to be commenced early next spring:

MAD RIVER AND LAKE ERIE RAILROAD.—At an annual meeting of the stockholders, convened agreeably to the Charter, on the third Monday, (20th) Oct., 1834, at Urbana, the following officers were duly elected:

Joseph Vance, Esq., President.

Horatio G. Phillips, Charles G. Swain, Pierson Spinning, Charles Cavileer, Jonathan Harshman, John C. Pearson, Benjamin M. Piatt, Robert Patterson, Josiah Hedges, John G. Camp, Isaac A. Mills, Talman Wildman, Directors.

At a meeting of the Directors present, held the same evening, they re-elected John H. James as Treasurer, and Jeremiah Warder, Secretary; and appointed a committee, consisting of Joseph Vance, H. G. Phillips, and Talman Wildman, to carry into effect the object of the Company, by procuring further subscriptions of stock, and putting the work into operation at as early a day as practicable. Adjoured to the first Wednesday in April, at Urbana, unless sooner convened by the President.

NEW YORK AND ERIE RAILROAD.—The influence which this enterprise is destined to exercise over large portions of our country, and the interest already felt far beyond the limits of its immediate field, may be judged by the annexed extract, which we make from a Journal printed in the town of Monroe in the Michigan Territory.

[*From the Monroe Journal and Michigan Inquirer.*]

In the year 1832, the Legislature of New York, incorporated the New York and Lake Erie Railroad Company.

This enterprise, to its projectors so honorable, and to our Territory so important, we have witnessed with deep interest; and we rejoice that measures are to be adopted which must ensure its consumation.

The Report of the Engineers who explored the route, is more favourable than was anticipated; and we understand that the Common Conncil of the city of New York have recently entered into the spirit of the subject, and that the Company are about to ask Congress to extend to them a helping hand.—Michigan having before Congress a petition for similar aid, the construction of a Railroad across the Peninsula, this subject, to our citizens, is one of peculiar interest. But taken as a component part of the great line of direct, rapid, and cheap communication contemplated from the Valley of the Mississippi through Illinois to Lake Michigan, and by the Wabash Canal to Lake Erie, its importance can hardly be appreciated.

The fertility of our soil—the amazinng current of immigration which is winding its way into every part of our Territory, and the great commercial facilities which are presented upon every side of us, all conspire to render the enterprise to which we have alluded, to us, of incalculable benefit. To Illinois, Indiana, and the northern parts of Ohio, the benefits resulting from this great enterprise will be no less important, and with a confidence, that twenty years since, we did not dream of, we anticipate, that at no distant period, the produce of those fertile and beautiful states, and the immense region of country beyond them, will find its out-let through this new and splendid avenue.

NEW YEAR'S DAY was kept in old fashioned style very generally. The beauty of the day seemed to animate every one; and one half,—though not the better half,—of our citizens were in active movement, from early morn to,—not dewy, but freezy,—eve, to visit the other. It was altogether a jubilee of kindness and good will.

NEW BANKS.—The Legislature of this State will convene at Albany next Monday. Applications will be made, in the course of the session, for the following new Banks, and probably others.

	Capital.
Cortland Co. Bank, Cortlandville.	$200,000
Oxford Bank, Chenango Co.	200,000
Tompkins Co. Bank, Ithica	250,000
Olean do Cattaraugus Co.	100,000
Canal Bank of Lockport, Niagara Co.	300,000
do do do	250,000
Kingston Bank, Ulster Co.	200,000
Delaware Co. Bank, Delhi	150,000
Fredonia Bank, Chautauque Co.	100,000
Phenix Bank of Lewiston, Niagara Co.	250,000
Clinton Co. Bank, Plattsburgh	200,000
Inland Bank and Insurance Company, Ithica Tompkins Co.	300,000
Dunkirk Bank, Chautauque Co.	200,000
Owego Bank, Tioga Co.	200,000
Wool Growers Bank Norwich, Chenango Co.	200,000
Farmers Bank at Batavia, Genesee Co.	200,000
City Bank of Buffalo, Erie Co.	600,000
Bank of Lockport, Monroe Co.	200,000
Putman County Bank, Carmel	200,000
Increase of Capital.	
Ogdensburgh Bank	100,000
Jefferson County Bank	120,000
Saratoga County Bank	100,000
Union Bank N. York	1,000,000
Greenwich Bank do	300,000
Total	$5,920,000

Notice for applications are also published in the Argus for the following Rail Road Companies.

Syracuse and Utica Railroad Co.	1,200,000
Rochester and Lockport	400,000
Ithica and Auburn, do	600,000
Attica and Buffalo. do	250,000
Rochester and Syracuse, do	2,000,000
	$4,450,000
also for the	
Canisteo Canal Co	200,000
Erie Insurance Co. Buffalo.	200,000

ORATION OF J. Q. ADAMS IN HONOR OF LAFAYETTE.—On Wednesday there was no sitting of Congress, the day being devoted to the speech of Mr. Adams in honor of Lafayette. Our letter sketches that speech partially; and the writer says of it, we doubt not justly, that it was eminently worthy both of the subject and the orator.

The delivery of it occupied two hours and a half, in the course of which, frequent indications of a disposition to applaud were manifested in the galleries and privileged places. At the conclusion of the oration, "members of all parties," as we are told, "vied with each other in tendering their congratulations to Mr. Adams on the admirable manner in which he had fulfilled the honorable duty confided to him."

The fact noticed in our Washington letter, that *not a single representative of a crowned head, though all invited*, was present on this occasion, is worthy of note.

HANDSOME NEW YEARS GIFT TO THOSE CONCERNED.—The Atlantic Insurance Company (Marine) have declared a dividend of *Ten per cent* out of the profits of the last six months.

RAILROAD CARS,

Messrs. D. & J. MITCHELL, Eclipse Foundry, Hollidaysburgh, Huntington county, Pennsylvania, are now prepared to manufacture, at short notice, any number of Railroad Cars—in the most approved and substantial manner. jan.24 t

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroad

No. 264 Elizabeth street, near Bleecker street, New-York.

☞ RAILROAD COMPANIES would do well to examin hese Cars; a specimen of which may be seen on that part o he New-York and Harlem Railroad, now in operation. J 15 tf

RAILROAD CAR WHEELS AND BOXES,

AND OTHER RAILROAD CASTINGS.

☞ Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to. Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR.

NOVELTY WORKS,

Near Dry Dock, New-York.

☞ THOMAS B. STILLMAN, Manufacturer of Steam Engines, Boilers, Railroad and Mill Work, Lathes, Presses, and other Machinery. Also, Dr. Nott's Patent Tubular Boilers, which are warranted, for safety and economy, to be superior to any thing of the kind heretofore used. The fullest assurance is given that work shall be done well, and on reasonable terms. A share of public patronage is respectfully solicited. m12

INSTRUMENTS.

SURVEYING AND NAUTICAL INSTRUMENT MANUFACTORY.

☞ EWIN & HEARTTE, at the sign of the Quadrant, No. 53 South street, one door north of the Union Hotel, Baltimore, beg leave to inform their friends and the public, especially Engineers, that they continue to manufacture to order and keep for sale every description of Instruments in the above branches, which they can furnish at the shortest notice, and on fair terms. Instruments repaired with care and promptitude.

For proof of the high estimation on which their Surveying Instruments are held, they respectfully beg leave to tender to the public perusal, the following certificates from gentlemen of distinguished scientific attainments.

To Ewin & Heartte.—Agreeably to your request made some months since, I now offer you my opinion of the Instruments made at your establishment, for the Baltimore and Ohio Railroad Company. This opinion would have been given at a much earlier period, but was intentionally delayed, in order to afford a longer time for the trial of the Instruments, so that I could speak with the greater confidence of their merits, if such they should be found to possess.

It is with much pleasure I can now state that notwithstanding the Instruments in the service procured from our northern cities are considered good, I have a decided preference for those manufactured by you. Of the whole number manufactured for the Department of Construction, to wit: five Levels, and five of the Compasses, not one has required any repairs within the last twelve months, except from the occasional imperfection of a screw, or from accidents, to which all Instruments are liable

They possess a firmness and stability, and at the same time a neatness and beauty of execution, which reflect much credit on the artists engaged in their construction.

I can with confidence recommend them as being worthy the notice of Companies engaged in Internal Improvements, who may require Instruments of superior workmanship.

JAMES P. STABLER,
Superintendent of Construction of the Baltimore and Ohio Railroad.

I have examined with care several Engineers' instruments of your Manufacture, particularly Spirit levels, and Surveyor's Compasses; and take pleasure in expressing my opinion of the excellence of the workmanship. The parts of the levels appeared well proportioned to secure facility in use, and accuracy and permanency in adjustments.

These instruments seemed to me to possess all the modern improvement of construction, of which so many have been made within these few years; and I have no doubt but they will give every satisfaction when used in the field.

WILLIAM HOWARD, U. S. Civil Engineer.

Baltimore, May 1st, 1833.

To Messrs Ewin and Heartte—As you have asked me to give my opinion of the merits of those instruments of your manufacture which I have either used or examined, I cheerfully state that as far as my opportunities of becoming aquainted with their qualities have gone, I have great reason to think well of the skill displayed in their construction. The neatness of their workmanship has been the subject of frequent remark by myself, and of the accuracy of their performance I have received satisfactory assurance from others, whose opinion I respect, and who have had them for a considerable time in use. The efforts you have made since your establishment in this city, to relieve us of the necessity of sending elsewhere for what we may want in your line, deserve our unqualified approbation and our warm encouragement. Wishing you all the success which your enterprize so well merits, I remain, yours, &c.

B. H. LATROBE,
Civil Engineer

A number of other letters are in our possesion and might be introduced, but are too lengthy. We should be happy to submit them, upon application, to any person desirous of perusing the same. m26